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A CONTRIBUTION TO THE HISTORY OF MEDICINE IN MARYLAND DURING THE REVOLUTION. 1775-1779.*

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The Revolution found the colonies but ill prepared medically to carry on a long war, for instruments and medical supplies were very scarce and England could no longer be appealed to when more were desired. The dearth of these necessaries in war became more and more apparent as the Revolution continued, and the pathetic statements of the different army surgeons strike a tender spot in our hearts, even to-day. Who has not been touched by this sentence Morgan writes in a letter to Dr. John Warren of Boston: "I send you two (scalpels) in which case you want more, use a razor for an incision knife."[1] The mournful words of Dr. John Bartlett to Dr. Potts are even more affecting: "I have a handful of lint and two or three bandages and that is all. What in the name of wonder I am to do in case of an attack God only knows; without assistance, without instruments, without everything."[2]

In Maryland this lack of instruments and drugs was most kneely felt. The Council of Safety, on April 23, 1776, write to the Maryland Deputies in Congress that they have received the surgeons' instruments and delivered them safe to Dr. Wiesenthal,[3] but this supply was evidently not enough, for less than three months later we learn that Dr. Wiesenthal wants the instruments very much.[4] He wished them for distribution among the other regimental surgeons of the Mary-

* Read before the Johns Hopkins Hospital Historical Club, October 10, 1904.

[1] Packard, The History of Medicine in the United States. Phila., 1901, p. 302.

[2] Packard, op. cit., p. 300. Morgan at this time was director-general and chief physician to the army. Dr. Potts was the deputy director-general of the northern department and Dr. John Bartlett the physician and surgeon-general of the same department.

[3] Council of Safety, I, p. 370. This paper is based on a study of the Maryland Archives. Volumes XI, XII, XVI, and XXI of the Archives are designated in the foot-notes: Council of Safety, I, II, III, and IV.

[4] Council of Safety, II, p. 35.

land troops, for later he writes: "Chirurgical Instruments are not in my possession except a few Lancets, a Bullet forceps and some needles, as well as three small Catheters, having hitherto made use of my own instruments. The Capital Instruments are on board the Defense and in Annapolis."[5] Dr. Richard Tootel had, also, given to the Council a list of surgical instruments he desired, which was forwarded to the Maryland Deputies with the request that they be procured and sent down at the first opportunity.[6] When Dr. Michael Wallace resigned his position as Surgeon to the First Maryland Regiment, in 1777, he tells the Council of Safety, "I have a very elegant set of amputating Instruments, and some other surgical apparatus; these I would rather not sell, unless the Council of Safety may hereafter find great difficulty in procuring such articles."[7]

At the beginning of the Revolution the medical shop of a Baltimore loyalist, Dr. Alexander Stenhouse, materially increased Maryland's supply of drugs. The appraising of this "shop" was done by Dr. Wiesenthal, who found "the medicines are all of a good quality, and saleable in case they should not be wanted the price is less than what medicines at present sell for, and that is considerable." "I thought it was necessary to take the whole shop," he adds, "not only because the Drugs must be contained in something but more particular that they can be kept in proper order and regularity, since they must occasionally be divided there ought to be a proper repository for the whole."[8] "Some few drugs were wanting," he says, "of which we have too little, at least in some small space of time, (viz.) Jesuit's Bark, of which we have but 5 lbs., next opium and Spanish flyes."[9] The necessity for which remedies caused the Council a month later to order Dr. Wiesenthal to purchase for the use of the regular service of this province 30 lbs. Jesuit's Bark, 2 lbs. Cantharides, and 4 ozs. of Opium. One pound of Spunge was also desired.[10] The price paid Dr. Stenhouse for his "shop" was four hundred and thirty-eight pounds, three shillings, and two pence,[11] showing that he was, probably, liberally compensated. "Some necessary Surgeon instruments" were included in this purchase. In 1777 another loyalist, Dr. Patrick Kennedy, left Baltimore,—this time with French leave, and Colonel Gist writes he has left sundry medicines here which are much wanting in the Continental Army.[12] We hear nothing else about them so we imagine they were forthwith confiscated.

This need of medicines for the troops in the field gradually became most urgent. In October, 1776, General Smallwood had written from Philips Heights: "We want medicine much, none can be had here."[13] A month later, this lack of drugs was even more evident, and Pine tells Tilghman that he found "the sick in both the Regular and Flying Camp Maryland Troops without the least morsel of Physick of any sort, although a great many of them were in a very piteable condition." He had applied to Dr. John Morgan, the director-general and chief physician to the army, for some drugs, but was told that it was the State's duty to furnish her regimental surgeons with medicines, and none could be obtained from him. A letter from General Smallwood, subsequently, caused him to relent and tell Pine he could have some remedies if he would go from White Plains to Newark for them. The distance, however, was too great for him to make this trip and return before the term of enlistment of many of the Maryland troops should have expired.[14]

Notwithstanding, then, Maryland's scanty store, the Board of War requested the State early in the year following to furnish Dr. Samuel McKenzie, Director of the Hospital at Baltimore, with such medicine as he shall require. To this request Maryland generously complied, furnishing the abovementioned doctor with such medicines as they could possibly spare. They "sincerely wished it had been in their power to have done it more amply, but considering the number of sick in this State and their low stock of medicine they could not part with a larger quantity."[15] Six months later their stock was even more depleted, for we learn "medicines there are little or none in the country."[16] It was about this time that the physicians, practicing among the citizens of Maryland, so lacked medicinal resources that the State on at least two occasions sells them the desired drugs. For the Surgeon in charge of the Hospital at Annapolis is requested to "deliver one pound of Jallop for the use of some people, who are under Innoculation in Charles County,"[17] and, again, the same surgeon turns over to Dr. C. A. Warfield, of Anne Arundel County, "2 lb. P. Bark, ½ lb. Gum Camphor, 2 drachms of Opium, 2 oz. of Balsam Copaiba, ½ lb. Rad. Jal-

[5] Ibid, II, p. 300. The Defence was the provincial man-of-war.

[6] Ibid., II, p. 120. To this request Stone for the Deputies replied four days later: "We shall endeavour to procure the Instruments desired by yours of the 25th but they are not easily procured, the Demand for the continental army being great and many of the cutlers of this city having gone to Jersey with the militia" (Ibid., II, p. 146).

[7] Ibid., III, p. 183.

[8] Ibid., I, pp. 149-150.

[9] Ibid., I, p. 144.

[10] Ibid., I, p. 294.

[11] Ibid., I, p. 192. He was probably paid in currency, the pound currency being worth three dollars, thirty-three and a third cents.

[12] Ibid., III, p. 241. Dr. Henry Stevenson, of Baltimore, was, also, a prominent loyalist. Two casks of gunpowder were taken from him in 1776. The reason given for this was "as he has neither signed the Association or Enrollment, he stands in the light of an Enemy to America, and therefore it would be dangerous to trust so much Powder in his hands" (Ibid., I, p. 496).

[13] Ibid., II, p. 360.

[14] Ibid., II, p. 480.

[15] Ibid., III, pp. 151 and 152. February 22, 1777, is the date when McKenzie is spoken of as Director of the Continental Hospital at Baltimore. He must have resigned about April 3 of that year, for we then learn that Mr. John Griffith declined this office (Council of Safety, III, p. 198). Some one was greatly needed at this time to "purchase and furnish for the use of that Hospital, Rice, Indian Meal, Molasses and such other food for the sick," who were under inoculation there.

[16] Scharf, Hist. of Md., Balto., 1879, II, p. 315.

[17] Council of Safety, III, p. 189.

lop, 1 lb. Sal. Cathart., 5 lb. Calomel Prep., and ½ lb. Argent. Vir. for the use of those greatly distressed for want of Medicine."[18] Somewhat earlier Dr. William Murray is allowed to receive "half a Pound of Bark from this same source."[19]

This great scarcity of drugs, especially "Bark and a few other Capital Druggs essential for the Army and exceedingly wanted for the Use of the Country"[20] induced the State Council, in 1777, to consider fitting out an expedition to Havana to obtain them. With this end in view they wrote to Captain James Campbell, on May the first, asking him to make the journey.[21] His affairs, however, did not appear to permit him to undertake this matter for the public and Captain Conway was, finally, selected for this purpose. The following letter was accordingly written by Governor Johnson of Maryland to the Governor of Havana, and entrusted to Captain Conway's care:[22]

Annapolis in Maryland. Augt 8th, 1777.

Sir:—

I flatter myself the Occasion will apologize sufficiently for the Trouble I give your Excellency by this Letter. We are situated in a country where Drugs of various kinds are necessary and none more so in some Cases, than Flies, or in many, than Peruvian Bark. Since our Connection with England has ceased and our intercourse with Europe is interrupted and almost cut off by the British cruisers we must Enquire in other Places for such essential Articles as we have not amongst ourselves. I have therefore, ignorant of what may be either suitable or admissable at the Havanna, sent Capt. Conway in Hopes of getting a Quantity of Flies and Bark for the use of the Troops; but with Directions not to dispose of anything without your Excellency's Permission. I hope the subjects of his most Catholic Majesty and those of the United States, may be mutually benefitted by a generous and fair Commerce and shall be happy if this Incident should lead to an Acquaintance and Confidence between those in your Department and those over whom I have the Honor to preside. If I request too much in soliciting leave for Capt. Conway to sell his Cargoe and purchase Drugs and a little Salt, I shall be exceedingly obliged by your giving him credit with some of your Merchants for about two thousand Pounds of Bark and one hundred pounds of Flies, and shall be careful to cause a just Remittance to be made. I am Sir with great Truth & Respect

Yr Excys most obt Servt

Governor of the Havanna.

The essence of the instructions to Conway is largely contained in the above letter. He was to proceed in the Molly to Havana, and it was stated that the Flies probably would "cost less than 5/ or 6/ Sterling and the Bark under 5/ Sterlg p l. perhaps much under." "You must expend," the latter continues, "as little as possible on the vessel whilst abroad, as you go armed you'll use your own discretion altogether as to attacking any Enemy Vessel and if you should be so fortunate as to take a prize, send her if the Chance is equally good for her getting into Port, to Mr. Harrison at Martinique with Directions to transmit Accounts as soon as possible that the men may be paid here when you arrive again upon the Coast, if convenient, run into one of the Inletts, Sinnepuxent we would prefer, which would be the best Port too for a Prize on all accounts if you send any to the Continent you will enquire in any Port you may go what may be had and what of our Produce may be disposed there, and the Prices for the advantage of our Trader as well as the public."[23] The Council, subsequently, in another letter, doubts "whether Conway can get out; from the last we heard from Virginia, the Men of War still continue at & about the Capes." They add, if Colonel Hooe thinks "it prudent to risk, advise the Captain so, if not, we do not intend his Orders for Sailing as absolute."[24]

Before Conway started out the instructions were changed and he was ordered "to proceed to the Moale and there dispose of his Cargoe and purchase there Bark if to be had on good Termes." If not, he was to go to Havana.[25] Unfortunately we do not know where Conway went, but we are told later that "Doct. Johnson is desired to sell four hundred Pounds weight of the Bark lately imported in Captain Conway at four Pounds per pound and to receive the money and pay it into the Treasury not disposing of more to any one private family than two Pounds or to any Practicing Phisician more than eight Pounds."[26] Doctor Johnson is, also, elsewhere requested to let "Doct. Craigg have 250 lbs. Bark."[27]

Besides these deficiencies, there were too few regimental surgeons and too frequently those who held office were lamentably incapable. Captain Thomas writes to the Council from Harlem September 4, 1776: "We have now and have had for some time a number of our men sick, a number very ill. I have had from fifteen to twenty of my men extremely ill and have not yet been able to procure them the least assistance. The Province have but two Surgeons here, one of them very ill, and none can be procured here. From the best authority I can assure you we have at this time near two hundred men unfit for duty and most of them without any assistance from the Doctor."[28] He had also written to the Maryland Deputies, who, thereupon, desire the Council to send, "if it be in their power a skilful and attentive person who should have the immediate care of the Independent companies. We have requested Dr. Bond, they state, to recommend such a one that we may propose him to congress for this purpose, but from the Doctor's answer we almost despair of finding a suitable person here."[29] More surgeons were finally

[18] Ibid., III, p. 291.
[19] Ibid., III, p. 25.
[20] Ibid., III, p. 235.
[21] Ibid., III, pp. 235-236. Captain Campbell at one time commanded Maryland's naval forces in the neighborhood of Hooper's Straits and Tangier Sound (Scharf, Hist. of Md., Balto., 1879, II, p. 301).
[22] Council of Safety, III, pp. 328-329.
[23] Ibid., III, p. 327.
[24] Ibid., III, p. 330.
[25] Ibid., III, pp. 331-332.
[26] Ibid., IV, p. 7.
[27] Ibid., III, p. 547.
[28] Ibid., II, p. 256.
[29] Ibid., II, p. 292.

appointed and "if they are all gone up," the Council declares, "there can be no just cause of Complaint."[30] General Smallwood about two weeks later, however, says: "We have upwards of Three Hundred Officers and Soldiers of the Maryland Regulars very sick . . . and I am sorry to say its shocking to Humanity to have no more Care taken of them."[31] He later, again, speaks of the suffering, which was due to the great neglect of the sick. The Directors of the General Hospital, he claimed, were "extremely remiss and inattentive to the well being and comfort of these unhappy men." He consequently had all of his "sick removed to a comfortable house in the country and had supplied them with only the common rations as even that was preferable to ordinary Hospital fare."[32] He continues: "One good seasoned and well trained soldier recovered to health is worth a dozen new recruits, and is often easier recovered than to get a recruit, exclusive of which, this neglect is very discouraging to the soldiery and must injure the service upon the new enlistments."

Thomas Stone, a member of Congress from Maryland, writes, on September 30, 1776, from Philadelphia: "Surgeons are much wanted in Camp but where proper ones will be procured I know not."[33] While early in the next year Thomas Johnson begs the Council of Safety to send "us in Frederick a skilful physician it will be well worth while, we are badly off, and the people who go from the little care taken of their countrymen, are very apprehensive of fatal sickness, indeed I fear that their scanty clothing will subject them to severe pleurisies."[34]

During the war State Hospitals were established at Baltimore and Annapolis. The former had a somewhat checkered existence, for it was only organized six months (from May to December, 1776) when it was given up and the sick were attended at the fort, at Whetstone Point. After nine months it was again instituted and continued from September, 1777, until March, 1778. It was revived, again, in September, 1178, and was located at the Continental Hospital until it was removed, two months later, to the fort at Whetstone Point.[35]

The Maryland Archives give many interesting items concerning the hospitals. We learn that at least five women (Eleanor Kirby,[36] Eliza Sharpe,[37] "Philis" Waterland,[38] Catharine Nixon,[39] and Catharine Minsky[40]) served as nurses, and John Amber or Aubber[41] was also employed in some official capacity—possibly as an orderly, for we know Philip Sulivan,[42] Richard Gee, Daniel Hall, and Joshua Lester[43] were enrolled as Orderlies in the Hospital. While Daniel Barnet[44] is mentioned as Orderly to the Flying Hospital, during the months of September and October, 1778, and Hugh Doyl, Richard Carter, and Neal Peacock[45] are spoken of as Orderlies to or for the sick. We, also, learn from this same source that the State liberally looked after the wants of the Hospital, 200 pounds,[46] 100 pounds,[47] and other sums being appropriated for its use. At one time David Kerr is paid "two shillings and six Pence for Vinegar for the Hospital,"[48] and, at another, William Lavely receives five pounds, eleven shillings, and a penny for 1010 pounds of bread for the Baltimore Hospital.[49] The supplies were procured by the quartermasters, who served under the physicians in charge. Joseph Marbury seems to have been the first of these quartermasters to hold office.[50] When the hospital was re-established in 1777 John Hart received the appointment on September 5,[51] but continued in office only until November 5, 1777, when Samuel Gerrock succeeded him.[52] Shortly thereafter the Council, thinking Gerrock's accounts more than they expected, though possibly very just, requested Dr. Gale, in charge at the hospital, to send them a list of those who are in the hospital, "noting what Service they belong to, and whether they are likely to be again fit for Service." They do this as the sum expended may be owing, "in some measure, to the Peoples remaining there who might be returned to their Duty or of others who are not likely to be fit for Duty."[53] On Novem-

[30] Ibid., II, p. 304.

[31] Ibid., II, p. 343.

[32] Ibid., II, p. 360. It is well to quote Dr. Toner in this connection. "Officers of all grades in the various departments were in the habit of writing exaggerated complaints to the Council of Safety and to Congress, and because sympathy could most certainly be excited in favor of the soldier, the hospital department was taken as the theme for denunciation, and accused of most cruel neglect, and in some cases of absolute inhumanity, and the gravest charges brought against the surgeons." He then quotes General Smallwood's letter as an example, from which I have taken the above extract (Toner, Medical Men of the Revolution. Phila., 1876, p. 63).

[33] Council of Safety, II, p. 312.

[34] Ibid., III, p. 36.

[35] Ibid., IV, p. 245. Congress resolved, October 6, 1776, that "no regimental hospital be for the future allowed in the neighborhood of the general hospital" (Toner, Medical Men of the Revolution. Phila., 1876, p. 78), so when the general hospital was given up Dr. Wiesenthal re-established the regimental hospital in the former's building, having already treated "several sailors from the Galleys there." Besides a previous note I have been able to obtain no information concerning this General or Continental Hospital at Baltimore.

[36] Council of Safety, II, p. 245.

[37] Ibid., II, p. 257.

[38] Ibid., II, p. 257 and p. 321.

[39] Ibid., II, p. 298.

[40] Ibid., II, p. 317.

[41] Ibid., II, pp. 252 and 313.

[42] Md. Archives, Muster Rolls, p. 392.

[43] Ibid., p. 391.

[44] Ibid., p. 308.

[45] Ibid., pp. 306 and 307.

[46] Council of Safety, III, p. 421.

[47] Ibid., IV, p. 271.

[48] Ibid., II, p. 134.

[49] Ibid., II, p. 187.

[50] Ibid., I, p. 241. Marbury was quartermaster of the First Regiment and seems to have acted in a like capacity at the General Hospital.

[51] Ibid., III, p. 363.

[52] Ibid., III, p. 409.

[53] Ibid., III, p. 446. On another occasion (Ibid., IV, p. 235) Gerrock seems to have procured eleven barrels of powder on false pretenses, which he was ordered to return. If he would not, Luther Martin was to sue him for them.

ber 5, 1778, Gerrock was displaced by Lieutenant Samuel Sadler, "who was much more conveniently situated."[54] Medical attendance was furnished by surgeons acting under the directions of Dr. Wiesenthal, and we know that Doctors William A. Dashiell, Michael Wallace, and George Gale were numbered among those who served there. When Dr. Wiesenthal went to Virginia in May, 1776, Dr. John Coulter seems to have taken his place and had sole charge, for which service he was paid 46 shillings some months later.[55] He evidently gave satisfaction, for when Dr. Wiesenthal made a second journey, to look after the Maryland troops, Major Smith suggests that if it would be agreeable to the Council he would prefer to apply to Dr. Coulter for medical assistance. Smith generously adds: "Coulter will do it as cheap as any one, being at the same time the most skillful."[56] A subsequent item of 46 shillings, paid to Dr. Coulter for attending the hospital, would seem to show that he was again selected to look after the sick there during Dr. Wiesenthal's absence.[57]

The removal of the hospital to the fort at Whetstone Point was the subject of much discussion, after it had been carried into effect. It was done by Major Nathaniel Smith and the State subsequently approved of the change of location, for we read: "We much approve your Removal of the Hospital and the good effect it has had ought to silence all objections; we would have the Sick continued at the Point; unless Circumstances should hereafter make it prudent to remove them." There must have been some complaint against the physician in charge as the letter continues: "It is for the Sake of the Sick only that we employ a Doctor, Quartermaster or Nurse, the Doctor must attend his Duty or we must get another." A nurse was evidently employed in the town, but was not needed at the fort, as the letter states: "We dont imagine any pay will be expected for a Nurse in town when there was no sick there; the Woman you have employed and who has done a real public Service ought to be paid by the Public."[58] Major Smith's action, however, was somewhat high-handed, as he did not consult Dr. Wiesenthal, which caused the latter to have a bitter correspondence with Governor Johnson and Major Smith over the matter. It seems that when the "sickly season" came on in September, 1778, and when a soldier died at the fort of "some Putrid Complaint," Dr. Wiesenthal recommended that the sick be removed to the Continental Hospital, which was nearly empty. He also ordered the foul straw to be taken away from the beds there. Shortly thereafter, while Wiesenthal was away, on a trip to St. Mary's County, to amputate Colonel Forrest's thigh, Smith ordered all the sick to be removed to the fort at Whetstone Point, without even consulting the attending surgeon. He, also, characterized the State Hospital as a horse stable, chiefly on account of its foul straw (which had not been changed, as Wiesenthal ordered) and its broken windows.

[54] Ibid., IV, p. 230.
[55] Ibid., II, p. 62.
[56] Ibid., II, p. 151.
[57] Ibid., II, p. 220.
[58] Ibid., IV, p. 230.

Upon Wiesenthal's return he writes a letter to Governor Johnson, recounting that lack of fresh straw is due to the quartermaster not furnishing any and that Smith is partly to blame as he could have furnished some from his farm. The broken windows were not a detriment to the State Hospital, Wiesenthal claims, as it was summer time. "Upon the whole," he adds, "as I presume that the Doctor is the principal man in Hospital Affairs & its Direction, and that the Quarter Master, is his Assistant, to procure those things which the Doctor orders, I do not know what Business the Comander has with him at any Rate, except where faults are comitted and then he is to assist, to have those faults remedied in a proper manner, the quartermaster is to receive Orders from the Doctor for everything he is to furnish in his handwriting and have his Acc[ts] again acknowledged & signed before he can settle his Affairs."

"As the Doctor prescribes the Diet according to the Nature of the Disorder some will receive full Diet, others half Diet, some one thing some another and as a Diet is not always pleasing to obstrepulous Soldiers they will make Complaints, if then the Comander is so weak as to listen to their Complaints as valid, and so hasty as to conclude without proper Inquiry, he will do great mischief. I mention this as an example which has happened, when some sugar was ordered on particular occasion, & which being withdrawn when that was over it being so disagreeable to be deprived of so sweet a thing, that they grumbled and preferrd general Complaints, as if they were stinted, whereupon the quarter Master was ready to give what they wanted rather than to be exclaimed aga[t] untill I thought it requisite to give him positive Orders to the Contrary. Nevertheles such things will gradually breed bickerings and at last open Complaints, for want only of proper limits in every ones Department."

He finally begs that Johnson will direct the Major to "Consult me in Cases of Sickness of the Soldiers and to follow my Directions in hospital Matters, as likewise to desire the quarter Master of the Sick to apply to me properly."[59]

Wiesenthal's letter to Smith tells him plainly that, while the fort will do to treat trifling disorders in, it is an unfit place for a hospital as it is "surrounded with Water in itself sickly." This must make it "more difficult for People already sick to recover And I beg that you will represent to your Mind a Danger which you little thought of, I mean the impurity of the Air, when the Patients are obliged to swallow the Effluvia arising from their diseas'd Bodys which on Account of the Lowness of the Building can not properly rise and be ventilated, this will inevitably turn slight disorders into putrid and dangerous ones, Nay in case any Person should be taken with such a Complaint, (as we have had many) he must unavoidably infect the Rest, nay even the healthy for Instance if Poor who lately died had unfortunately been at that place it would most probably have furnished a dreadful Lesson of the Truth. For these Reasons to avoid any Infections Hospitals have generally been estab-

[59] Ibid., IV, pp. 243-246.

lished quite out of the Way and I believe you stand singly to be so assiduous to place even in the midst amongst you."

Wiesenthal, also, shows Smith in this letter how awkward it would be to send sick soldiers to the fort "to crowd the place," as there was no Continental Hospital, at present, in Baltimore.[60]

The Archives do not state when the hospital at Annapolis was established. Probably it was in July, 1776, in which month Dr. Richard Tootel was appointed Surgeon to Colonel Hall's Battalion of Militia.[61] It appears that he then assumed charge of the hospital. Thomas Henry Howard was appointed his surgeon's mate at this time[62] and William Gerwood, subsequently, received the same berth.[63] On December 17, 1776, Beriah Maybury was made quartermaster.[64] He was able to provide for the hospital efficiently, as the State responded well to requests for supplies. Bedding,[65] wine, spirits, and other necessaries out of the public store[66] are mentioned as being furnished, and various sums of money were appropriated for its use. On two occasions ten and thirty pounds of candles[67][68] were doled out to Captain Maybury, the quartermaster, for the use of the hospital. Infectious diseases were not treated there, and Dr. Tootel is requested, on September 17, 1776, to remove all such cases and have them nursed in private houses.[69] In the previous month Colonel Hall's Battalion had received its marching orders, which caused the doctor to protest against going on account of his age, bad health, and particularly the season of the year. "I could scarce think," he says, "of leaving home and between three and four hundred a year, arising from my practice of Physick and other advantages, to move into another province and leave my Family, consisting of a Wife, a Daughter and a small son for whom I have the most tender affection, and who in my absence must inevitably suffer, to embrace a surgeon's place, which pay would scarce defray my expenses as I should be oblig'd to travel with a servant and Horses, and perhaps be ordered by the Surgeon General to what department he pleased.

"I have attended the sick soldiers with the greatest assiduity and care and I believe I have given general satisfaction both to the officers and soldiers. I have had great fatigue and trouble regulating the Military Hospital shop and compounding various Medicines from the gross materials, which was acting beyond my line of office It being my duty only to prescribe for the sick, the Medicines ought to have been delivered to me ready for prescription. The Hospital is now filled with sick soldiers which I am ready to attend, and likewise the train of Artillery and any other troops that might be stationed in this city. I should be sorry that the Battalion should suffer, from my not marching with them and really as I'm circumstanced at present that is impracticable."[70]

The Council appears to have been touched by this appeal and Dr. Tootel was permitted to remain at Annapolis.[71]

In 1777 the hospital burnt down[72] and the building hereafter used was apparently not State property as we learn James Williams was paid eighty-five pounds on February 17, 1779, for one year's rent of the hospital.[73]

From "returns" we find the following diseases affected the Maryland troops during the Revolution: putrid fever, inflammatory fever, intermittent fever, "peupneumony," bilious fever, rheumatism, diarrhœa, flux, jaundice,[74] and that dreadful scourge small-pox. This last disease was always with the army at some point, though Washington's firm belief in inoculation, which he caused to be carried into practice, greatly lessened its dread mortality. A number of outbreaks of this disease occurred in Maryland. In May, 1776, Colonel Ware writes the Council of Safety that he has just been "informed by Dr. Wiesenthal that small-pox prevales in several parts of Baltimore and fears the command might take the infection." He was advised by the doctor "to be enockolated emediately as a person of my age must be in great danger who takes it in the natural way." He, consequently, thought it his duty to state the matter to the Council and wait their instructions.[75] To this the Council replied and cheerfully absolved themselves of all responsibility by saying: "We leave Colonel Ware entirely at large on the Point of Inoculation. We think it the safest method of taking the Small Pox, but would have him judge of the Risque."[76]

In July of the same year small-pox broke out among the troops under Lieutenant Bracco's command at Port Tobacco. He desires Tilghman to let him know in what manner to act, whether "emediately to inoculate the remainder of the men or remove them out of the way." The latter he thinks would be of no effect as the man "who communicated the infection was a day and night in company with all the Soldiers here, some combed his hair and others slept with him." He was thought to have been previously inoculated by Dr. Browne "who had the care of the fellow."[77] As only four of Bracco's men had had the disease, the Council advised all the others to be immediately inoculated. They desired Bracco to apply to Dr. Craig for this purpose, making the best bargain possible with him. They, finally, add that all expenses will be paid,[78] and

[60] Ibid., IV, pp. 246-247.
[61] Ibid., II, p. 15. He had applied for the place but two days before his appointment (Council of Safety, II, p. 7).
[62] Ibid., II, p. 15.
[63] Ibid., II, p. 394.
[64] Ibid., II, p. 534.
[65] Ibid., II, p. 174.
[66] Ibid., II, p. 534.
[67] Ibid., IV, p. 256.
[68] Ibid., IV, p. 112.
[69] Ibid., II, p. 276.
[70] Ibid., II, pp. 217-218.
[71] Eleven days later David Murrow was appointed Surgeon of Colonel Hall's Battalion (Council of Safety, II, p. 245).
[72] Cordell, The Medical Annals of Maryland, 1903, p. 659.
[73] Council of Safety, IV, p. 305.
[74] Md. Archives, Muster Rolls, pp. 619 and 620.
[75] Council of Safety, I, p. 399.
[76] Ibid., I, p. 403.
[77] Ibid., II, p. 125.
[78] Ibid., I, p. 531.

later learn that the men are all getting through the small-pox as well as can be expected, in a letter Bracco writes, asking for a sum of money to defray the expenses. "I have expended almost all my own cash," he says, "and when that is gone we may whistle for provision until we can get a fresh supply. The People here follow a very good rule, not trust us farther than they can see us." [79] He was subsequently allowed one hundred pounds for this purpose.[80] Again, in December, 1776, there is a note in the Archives concerning a man on board Captain Conway's sloop with the small-pox. He belonged to St. Mary's county and wished to return there. The Council, consequently, wrote to Captain Ignatius Taylor of that county, inquiring of him if he was inoculating in his house and, if so, asking him to take the sick man in. If he was not inoculating, they desired him to get the man into some house that has the small-pox or into some house where the family have had that disease.[81]

Early in the next year Surgeon Barton Tabbs writes: "The soldiers in Lawrence's Barracks are breaking out fast with the Small Pox. I am told they have all had it except eight or ten. I think it will be the best way to move them to the poor House and inoculate them immediately. If they are suffered to remain in the Barracks and take it in the natural way, the greater part will certainly be lost. There has been five sent up within this two days, and I don't expect above one will be saved. There can be nothing else expected considering their way of living. Those who were inoculated are in a very good way, but the poor fellows who has it in the natural way are in the most horrid situation." [82] Two months later Thomas Smyth, Jr., informs the Governor that "we are preparing at Chestertown for the inoculation of our men," and mentions the great lack of blankets and other necessaries. He, also, states that the people of Chestertown were much opposed to having the troops inoculated there, fearing lest it might spread the disease, which had not been seen among them for many years.[83] We are also, elsewhere, informed that small-pox had affected some of Colonel Richardson's Regiment at Cambridge, in July, 1777.[84]

Two interesting references to invalided soldiers are to be found in the Archives. The first soldier was James O'Hara, "who had the misfortune, before the departure of his Battalion from the province, to take cold standing centry at night which brought on an universal Eresypelas from head to foot, the vesications common in that Disorder discharged a humour so sharp that in few days he was all over deprived of his skin, his eyes likewise suffered to that Degree as to deprive him of his sight." He finally recovered but his sight was permanently lost. Wiesenthal writes an interesting letter on his behalf to Jenifer, the President of the Maryland Convention.[85] The second soldier, Robert Hurdle, was a member of Captain Truman's Company of the Sixth Maryland Regiment. He had sore legs and was consequently discharged, "being represented by Doct. Wallace and Doct[r] Johnson as not likely in a long time if at all to become fit for the Service." [86]

On July 23, 1777, Eddis writes from Annapolis to Eden that "the Mortality which has prevailed among the Provincial Troops is incredible. A vast number of those raised in Maryland brought back with them the Camp fever & died prodigiously fast the Church yard, the back of the Poor House and a Piece of Land which is enclosed in the Folly, are crowded with melancholy proofs of Calamity." [87] I can find no other note concerning the death-rate of the Maryland troops.

The surgeon's pay was fifteen pounds per month, generally, while that of his assistant or mate amounted to seven pounds and ten shillings.[88] These rates were not fixed, however, for some of the surgeons appear to have been paid a lump sum per year,[89] and others were certainly paid less than the above amounts. In 1777, Bruce writes to Governor Johnson that he had informed Dr. Buchanan, Johnson had sent for his commission as surgeon. Whereupon Buchanan asked what his pay would be. Bruce replied that he believed it to be about 30 or 33 dollars a month. Thereupon Buchanan told him he would not go under fifteen pounds, though Bruce informed him it would have been proper in him to have known the pay before he asked for the berth. Bruce then states that "Mr. Thomas Charleton wished to go out as a surgeon, and though he did not know anything of Mr. Charleton's abilities yet they must be poor if they are not equal to Doct. Buchanan." [90]

The surgeons were appointed, as a rule, by the State, at

[79] Ibid., I, p. 543.

[80] Ibid., I, p. 554. Ten days later, as Bracco had exhausted both money and credit, he writes for a further sum for their subsistence. Unless this is sent he "shall be obliged to suffer the men to disperse and let each man look out for himself." He thought "as the small-pox was very favorable ten days from this we shall be able to do duty" (Ibid., II, p. 59).

[81] Ibid., II, p. 528.

[82] Ibid., III, p. 112.

[83] Ibid., III, p. 204.

[84] Ibid., III, p. 309.

[85] Ibid., II, p. 513. The State did not leave him destitute. He was discharged Aug. 5, 1777, but was allowed to draw rations while he continued at Annapolis and until further directions (Ibid., III, p. 324). In 1779 the State paid him 75 pounds and allowed him a pair of shoes and a pair of overalls (Ibid., IV, p. 494).

[86] Ibid., III, p. 547. Three others are mentioned as being discharged because they were invalids, one because he was "subject to fits," one had the spleen, one a "Dropsical Complaint," and still another had lost the use of his arm (Ibid., III, pp. 206, 305, 308, 450, 453, and 463). John Woodfield was given a furlough, which was twice extended, as the doctors thought "Country Air would be of service for him" (Ibid., IV, pp. 237, 269, and 316).

[87] Scharf, loc. cit.

[88] Thacher gives the pay as 33 and 18 dollars per month, respectively (Thacher, Military Journal, Boston, 1824, p. 73), while Scharf says it was 40 and 20 dollars (Scharf, Hist. of Md., Balto., 1879, II, p. 190). Council of Safety, I, pp. 22 and 421; II, pp. 336, 514, 553; III, pp. 130 and 503.

[89] Council of Safety, I, p. 467.

[90] Ibid., III, p. 33.

times by those in command with or without the State's subsequent confirmation.[81] Dr. Wiesenthal appears to have had some supervision over these appointments. Barrister Carrol in 1776 says: "I mentioned to Wiesenthal that he might have occasion for some assistants & there were many young gentlemen that offered themselves. We expected he would examine them," Carrol says, "and pitch on such as he thought best qualified. This he agreed to do, I think therefore that it may not be improper to send him the names of such as stand on the list."[82] Some two years later, Dr. Wiesenthal informs us: "I have all along contrived a Medical School to bring up young Surgeons for Military Service and in which I have the Satisfaction to have allready succeeded, instead of such, which after their hardly finish'd Apprentiship set up and act the wise Doctor with all the Arrogance at the expense of the patient."[83]

In this connection three letters of recommendation of young surgeons are of interest. The first one is by Dr. Wiesenthal and states that "Dr. Andrew Porter, having been a candidate for a Surgeons place on the Surgeons list for some time, is now willing to go as such in a Battalion going to the Flying Camp. His abilities for that station are such that can recommend him."[84] The second letter is from Dr. Thomas Gantt and refers to the candidacy of Mr. Thomas N. Stockett. "Having lived with Mr. Stockett," he states, "for four or five years past, the greater part of which time he applied himself to the study of Physick; and since my leaving that place, have had frequent opportunities of being acquainted with his method of practice; think him sufficiently qualified to act in that character."[85] The third is written by Dr. W. H. Jenifer and concerns William Marshall, who had served an apprenticeship of three years with him. Marshall, rather than not go into the army, had accepted an ensigncy, offered him by Colonel Stone, but as he had applied himself to the study of medicine and "by which he proposed in future to live," desired a surgeon-mateship. Dr. Jenifer adds: "I can assure you of his being assiduous and well qualified to fill that department."[86] David Morrow was, also, a candidate for a place in the medical service, and hearing nothing from the Council, though he had sent them a letter of recommendation from Doctors Cadwalader, Bond, and Shippen of Philadelphia, writes anxiously to know if he has gotten an appointment. He, also, desired the letter of recommendation to be returned, as it will cost him some trouble to obtain a second.[87] Dr. Wiesenthal, also, elsewhere refers to the candidacies of David Finlay, John Dorsey, and John Johnson of Frederick County.[88]

I regret that my material on hand does not suffice to give sketches of the prominent surgeons of the Maryland troops during the war. Many of them did, also, excellent work for the State on important committees, and not a few served her in other legislative capacities. Much information will be found in Dr. Cordell's recent book and in Dr. Quinan's writings. There is one man, however, I should like to mention, though his career has been carefully studied by Doctors Cordell[89] and Piper.[90] I refer to Dr. Charles Frederick Wiesenthal, who was born in Prussia in 1726. His interest in the organization of an army medical department in Maryland and his thorough knowledge of the management of such departments in both Prussia and England[91] caused him naturally to assume charge of medical matters in this State, at the onset of the war.

In his plan he would have a garrison or regimental hospital when the troops are in garrison and a moving or flying hospital when the troops take the field. This latter was to be placed in the rear of the army, on the next plantation. Besides these he would erect another hospital called the fixed hospital for the treatment of the wounded and the more chronic cases. The bedding and also the sundry articles of diet for this hospital were to be furnished by a commissary, while a Physician or Surgeon-General or Director-in-Chief would have the whole supervision of it. In this hospital a medicinal shop was to be located with a proper person for preparing the medicines, under the direction of the Surgeon-General. The latter was to "procure those medicines from time to time which become deficient (if to be had)."[92] I have previously shown in this paper several instances of the trust and confidence the Council of Safety reposed in him. He was made a member of the Baltimore Committee of Observation in January, 1775,[93] and towards the close of that year appointed supervisor of the manufacture of saltpetre for Baltimore county.[94] He later became examiner of candidates (as I have shown) for places in the medical service, medical purveyor and surgeon to the First Maryland Battalion. This last office he received March 2, 1776.[95] It was not the place he designed for himself as he wished to become the Surgeon-General of Maryland, but then there was no choosing, so he cheerfully accepted this office. He hoped for the above title later and seemed to have acted in the capacity of this position when he merely held the office of surgeon.

[81] This was the case with Dr. Samuel Y. Keene, who was appointed surgeon's mate by General Greene, and, though the State did not confirm this appointment, yet Keene continued to serve in the capacity of this position until the end of the war (see Muster Rolls, p. 478).

[82] Council of Safety, I, p. 172.

[83] Ibid., IV, p. 246.

[84] Ibid., II, p. 261.

[85] Ibid., II, p. 286.

[86] Ibid, III, p. 184.

[87] Ibid., II, p. 132.

[88] Ibid., II, p. 231.

[89] Cordell, Charles Frederick Wiesenthal, Medicinæ Practicus, the Father of the Medical Profession of Baltimore. Johns Hopkins Hosp. Bull., 1900, XI, pp. 170-174.

[90] Piper, Memoir of Dr. Charles Frederick Wiesenthal, 1900, p. 18.

[91] Council of Safety, I, pp. 144-145.

[92] Ibid., I, p. 321.

[93] Scharf, op. cit., II, p. 172.

[94] Cordell, op. cit. in Johns Hopkins Hosp. Bull., 1900, XI, p. 171.

[95] Council of Safety, I, p. 197.

For he then had the care and management of the State Hospital in Baltimore. He, also, had medical supervision of the troops from this State and the marines from the ship Defence; he had likewise fitted out the Defence with medicines, and twice furnished her with a surgeon in the absence of her own.[206] According to Dr. Quinan's manuscript, he received his wished-for office the next year, 1777, with a salary of thirty-five shillings per day, without rations.[207]

The ability he showed in the formulation and development of his subsequently adopted plan for an army medical department in Maryland and the skill he exhibited in the plan's execution merit for him long remembrance in this State by a grateful people.

[206] Ibid., II, p. 13.

[207] Dr. Tootel, in charge of the hospital at Annapolis, appears to have been like a thorn in the flesh and not much love was lost between him and Dr. Wiesenthal. On August 14, 1776, Wiesenthal thought himself superseded by Dr. Tootel and consequently discharged from any provincial employment, as the latter doctor was appointed surgeon to Colonel Hall's battalion of militia (then ordered to be stationed at Annapolis and Baltimore in place of Colonel Smallwood's battalion) and acted at the same time as director (Council of Safety, II, p. 202). Such was not the case, though, and everything continued serene until Dr. Tootel wrote Wiesenthal about one month later, saying the Council of Safety desired him to turn over to Tootel all the medicines, shop furniture, etc., belonging to the Province. The impracticability of this order Wiesenthal well shows, as a removal of the medicine shop could only be attended with manifest loss and great trouble. Besides, the Baltimore Hospital was just as crowded as the one at Annapolis and the former was the safest for the repository if any disturbance should happen in the Province. Then, too, the Maryland navy had been supplied with medicines from the Baltimore hospital from time to time. Wiesenthal elsewhere speaks of Tootel's extravagant invoice of medicines once sent him, of which even the whole city of Philadelphia could not have furnished half. A retrenchment of Tootel's prescriptions to the present situation of affairs was needed (Council of Safety, II, p. 299).

SITUS TRANSVERSUS AND ATRESIA OF THE PYLORUS.

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The mother of the child under consideration was a white woman, aged 33 years, of excellent family and personal history. She had been married thirteen years and after one child at term had had four miscarriages, one each year following, the first at six months, the remaining three at three to four months.

At the time of the first miscarriage she had been infected, and since that time had suffered from severe pain in the back, worse at her menstrual periods.

She first entered the hospital in August, 1903, when a chronic hydrosalpinx was removed, and the uterus, which was found retroposed and adherent, was freed and suspended to the anterior abdominal wall.

She became pregnant soon after her discharge, and menstruated last on December 19, 1903.

She re-entered the hospital on July 29, 1904. Her pregnancy had so far been quite normal. Shortly after her admission her abdomen began to increase markedly in circumference and the uterine tumor became so tense as to suggest tetanic contraction of the organ.

Labor pains began on September 15 and continued irregularly until September 19, when her child was born. There was an enormous amount of amniotic fluid, estimated at about 5 to 7 liters.

The child was a male, 48 cm. long, and weighed 2350 grams. The measurements of its head were: O. M., 13; O. F., 10.5; S. O. B., 9; B. P., 9.25; B. T., 8.25. The placenta weighed 525 gms., and was macroscopically and microscopically normal.

The child was slightly asphyxiated, but cried on slight stimulation. It had a peculiar appearance. The body still showed lanugo hairs and the facies was that of an infant that had become markedly emaciated. The eyes were small and sunken. Its cry was feeble. Its temperature at birth was 95°.

Shortly after birth it vomited about 20 to 30 cc. of greyish fluid, resembling amniotic fluid.

19/IX, 1st day. It was given small amounts (4-5 cc.) of water during the morning and afternoon. Was put to breast at 5 and 8 p. m.; during the night at 10 p. m. and 2 and 6 a. m. Given 15 cc. of a mixture of cream and whey (F 1%—S 7%—P .98%). Vomited a large amount at 6 a. m.

20/IX, 2d day. Put to breast for 15 minutes every 3 hours. Passed a small amount of dark meconium. Fed at night as before, and vomited feedings. Temperature still subnormal, 96.8°-97°. Has lost 60 gms. since birth.

21/IX, 3d day. Child restless. Bowels moved twice. Nursing supplemented with special prescription (F 1%—S 7%—P .98%). Vomited portions of feedings. Temperature still subnormal. Superficial veins of abdomen distended. Has lost 160 gms. since birth.

22/IX, 4th day. Condition somewhat better. Still losing weight; total loss thus far 218 gms. Temperature still subnormal. Bowels moved once—green meconium.

23/IX, 5th day. Mother's milk plentiful. Child vomited after each nursing. Gastric lavage at 8 p. m. and 10 p. m. All milk left in stomach at first, present at second washing. Bowels moved once—light green meconium. Temperature still subnormal. Loss of weight to date, 257 gms.

24/IX, 6th day. Bowels not moved. No urine voided. Temperature lower than on previous days. Gastric lavage in evening, followed by 10 cc. of castor oil. Part of oil vomited. S. S. enema given.

25/IX, 7th day. Small amount of green meconium carried away with the enema, and about an hour later the child passed a small amount of blood-tinged mucus. Lavage showed the presence of the castor oil in the stomach.

A diagnosis of complete obstruction of the pylorus or upper portion of the duodenum was based on the following considerations:

1. The vomiting of the large amount of amniotic fluid shortly after birth.
2. Recurrence of the vomiting not regularly after the ingestion of small amounts of fluids, but as soon as approximately 20 to 30 cc. had been given.
3. The presence in the stomach of entire amount of a feeding (15-20 cc.) when the stomach was washed out some two hours after its ingestion.
4. The absence of bile-staining of the vomitus or fluid obtained at lavage.
5. The presence and passing of meconium gradually showing more and more the appearance of bile.
6. The absence of any sign of digested milk in the stools as late as the seventh day.
7. The uniformly subnormal character of the temperature.
8. The persistent loss in weight.
9. The anuria.
10. The fact that the mother had hydramnios.

An important point in the diagnosis, first pointed out by Wyss—the absence of bacteria from the meconium—we did not observe.

The presence of hydramnios is of no little importance in making a diagnosis of this condition. Opitz observed that of 26 children born of mothers with hydramnios, but five were normal. It is remarkable, too, that of six cases of complete obstruction diagnosed during life and of which the reports of the autopsy findings were accompanied by complete clinical histories, in four, those of Porak and Bernheim (1891), Macé (1899), Wyss (1900), and Voron (1904), note was made of the presence of hydramnios on the part of the mother; while in two, those of Brindeau (1895) and Maygrier and Jeannin (1900), there was no statement as to its presence or absence. Under conditions such as were present in our own case, the fact that the fœtus could not swallow, or at any rate absorb, any great quantity of the liquor amnii, may account on the one hand for the unusually large amount of amniotic fluid present, and on the other for the emaciated condition of the child. As the most common congenital malformation of the digestive tract is undoubtedly stenosis of the pylorus, it appeared permissible to attribute the vomiting to such an abnormality—a supposition which was strengthened when it was noted that the vomiting did not occur with each feeding, but later when the stomach had been overloaded. Moreover, the passage of bile-stained meconium indicated that the gut was patent below the ampulla of Vater; and such being the case, the question to be decided then was, whether the obstruction was complete or partial. The absence of signs of milk in the stools was almost as significant as the absence of bacteria, while the anuria, hypothermy, and progressive loss of weight could only be explained by some serious interference with the body functions.

A laparotomy was performed under chloroform anæsthesia by Dr. W. F. M. Sowers, acting resident surgeon of the hospital, at noon, September 25, 1904. On opening the abdomen the stomach immediately came into view. The obstruction was not definitely located, and as it was thought best to avoid any unnecessary delay, the most accessible loop of ileum was secured and a typical gastro-enterostomy was done. The duration of the operation was about 25 minutes. The abdominal incision was closed with through and through sutures and the child was taken from the table in excellent condition. It came out of the anæsthetic well, and seemed much better. Salt solution was given per rectum, but was badly retained. The temperature began to rise during the afternoon and the child died at 2 a. m., September 26, 14 hours after the completion of the operation.

Apart from the case referred to above, reported by Maygrier and Jeannin, I have found no other in which gastro-enterostomy had been done on the new-born child. The operation has, of course, been successful in older children, where the stenosis has been incomplete, but Abel's favorable result in a child of 8 weeks, weighing over 4000 grams, is probably the most satisfactory one reported.

Péry has advised against operation in all cases of complete occlusion of the gut, as the results have invariably been fatal. On the other hand, without operation the prognosis is worse, for there is no possibility of recovery. Moreover, the bad results shown in the cases collected by Kuliga, Braun, Letoux, Savariaud, and Weill and Péhu have been in operations lower down in the intestinal tract where the distal portion of the gut had practically no lumen; and in many instances the difficulty of absolute accuracy of diagnosis delayed the operation until there was no possible hope for a favorable result.

Weill and Péhu insist that where the symptoms are not definite delay is permissible, but that the earlier the operation the greater are the chances of its being successful. This applies chiefly to cases where the obliteration of the gut is incomplete, for the early appearance of severe symptoms would, of course, point to a more complete occlusion and render the prognosis grave.

Autopsy.—At autopsy twelve hours after the death of the child there was found the following condition:

The body was that of a well-nourished male child 48 cm. in length. Rigor mortis was slight. The skin appeared normal except for some areas of discoloration. In the abdominal wall to the right of the linea alba there was a surgical incision about 7 cm. in length extending from the costal margin to a point about 1 cm. below the umbilicus.

On opening the abdomen and thorax the condition of complete situs transversus was observed.

The heart, of about normal size, lay almost entirely to the right of the mid-sternal line. The apex of the heart was 4 cm. from the mid-line in the 5th interspace. The foramen ovale and the ductus arteriosus were still patent, the heart otherwise was normal.

The lungs were of normal color and consistency both externally and on section. The right lung consisted of but a single lobe, showing, however, a small incisure opposite the sixth rib at its anterior border, indicating the probable line of division of the two lobes.

The left lung was made up of three lobes, which were fairly well defined. The lower and middle lobes were completely divided by a fissure; the upper and middle lobes, however, though separated completely on the posterior surface, were only indicated on the anterior surface by a notch just above the heart. The diaphragm reached the same height on both sides, due no doubt to the greatly distended stomach in the right hypochondrium.

The spleen was located in the right hypochondriac region in normal relation to the surrounding organs. The organ measured 2.75 x 1.25 x .5 cm., being of about normal size, consistency, and color.

The liver was of about normal size, measuring 7 x 3½ x 3 cm. and of reddish brown color. On the anterior surface of the right lobe was seen a hæmatoma measuring about 1 cm. across, which was produced by a slight injury at the operation. The organ had a large left and a small right lobe. The large left lobe occupied the greater part of the left hypochondrium. The gall bladder was observed lying on the inferior surface of this lobe about 1½ cm. from the mid-line and not extending quite out to the edge. The right lobe seemed rather larger in proportion than normal. Tracing out the bile duct, it was seen to have a normal course and was patent throughout.

The pancreas with its head in the left half of the epigastric region extended into the right hypochondriac region, so that its tail touched the mesial surface of the spleen. Projecting from the inferior edge of the pancreas to the right of the head were two small accessory pancreatic lobes, the longer measuring about 1½ cm. in length, and the shorter about ¾ cm.; their diameters were 4 and 2 mm., respectively. The larger of the lobes was directly continuous with the pancreas, while the smaller joined the larger close to its proximal end. These accessory portions extended out between the layers of the mesocolon. The duct of Wirsung was patent.

The kidneys were of about equal size, measuring 3.5 x 1.75 x 1.25 cm. The right kidney was placed slightly higher up in the body cavity than the left. On section the organ seemed normal.

The stomach was greatly dilated, measuring 7 x 4 x 3 cm., and occupied the greater portion of the epigastric and right hypochondriac regions and extending downward occupied a considerable portion of the umbilical and right lumbar regions. The stomach wall was everywhere smooth and tense. The fundus except for marked distension seemed about normal. The pyloric end, however, lay lower in the abdominal cavity than normal, and on dissection was seen to extend toward the left to a point slightly below the head of the pancreas; here it ended abruptly. On searching for a continuation into the duodenum, no connection could be found, but lying just behind and to the left of the head of the pancreas was seen the blind end of the duodenum, separated thus by an interval of perhaps a centimeter from the blind pylorus. No structure such as a fibrous strand or obliterated portion of the bowel could be found connecting the two blind ends. To exclude the possibility of such a structure, the two blind ends were carefully examined and in each case the serosa was intact over the entire surface, showing no point at which a small strand might have been pulled away. At the pylorus there was a small nodule which at the time was somewhat suggestive of being a possible point of former communication. It showed, however, in a set of serial sections a small lumen extending out into the nodule which did not open upon the surface, but ended blindly. This nodule was small and fibrous, slightly raised above the level of the surrounding surface, and its surface appeared perfectly smooth. It measured about 2 mm. across.

The general shape of the stomach was preserved, showing no structure that suggested a pyloric band of muscle. On palpation also no pyloric band could be made out, but it was noticed that the anterior wall was perceptibly thicker than the posterior. On the posterior surface near the margin of the greater curvature the ileum had been brought up and a gastroenterostomy performed. The wound showed no inflammation about it and seemed to be healing.

The organs were hardened in situ in formalin, and on opening the stomach it was found to contain gas, fluid, and a small amount of dirty grey material. The rugæ were all obliterated.

As mentioned above and as seen in Fig. 1, the duodenum began in a somewhat enlarged, perfectly smooth blind sac, just to the left and slightly above and behind the head of the pancreas. Very close to the top of the sac the pancreatic and common bile ducts entered. The papilla of Vater was distinctly made out. Beginning at the side of the pancreas the duodenum extended downward for 6 cm., acquiring a mesentery just below the level of the pancreas and then curving slightly to the left continued as jejunum. The three divisions of the duodenum could not be made out nor the point at which the duodenum went over into the jejunum. The duodenum contained a small amount of turbid yellowish fluid. The small intestine in its first 10 or 15 cm. was of practically normal size, but beyond was empty and very much contracted. The ileo-

cecal valve was situated in the left iliac fossa. The appendix measured 2 cm. in length. The ascending colon thus was on the left side and the hepatic flexure in the left hypochondrium. The colon then crossed over to the opposite side, forming the splenic flexure in the right hypochondriac region and descending in the right side formed a large sigmoid flexure which extended beyond the mid-line; it entered the pelvis to the right of the mid-line.

The arteries and veins also showed a complete and exact situs transversus in every detail. The aorta came off from the right auricle, arched upward and to the right, and then extended down on the right side of the vertebral column. From the arch were given off a left innominate and a right carotid and subclavian. Joining the lower portion of the arch of the aorta was the ductus arteriosus, which still remained patent. The long renal and intercostal arteries were naturally on the

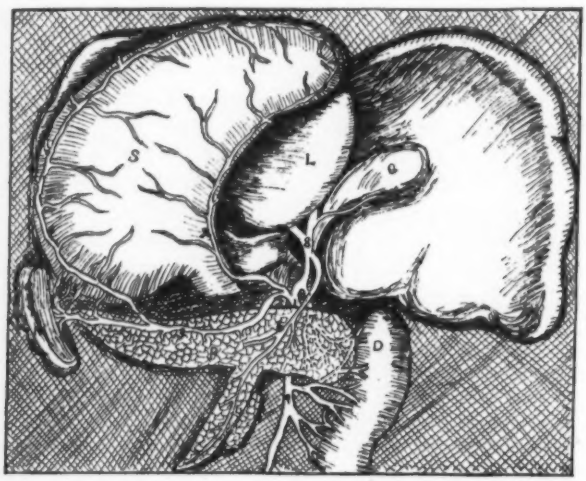

Fig. 1.

left side in this case. At the bifurcation of the abdominal aorta the left common iliac artery passed over the right and left common iliac veins to its position lateral to the latter. A scheme of the vessels has been diagrammatically shown in Fig. 2.

Unfortunately the arteries were not injected before section, and it was with some difficulty that the finer branches of the cœliac axis were traced out. As shown in Fig. 1, the general relation of the vessels could be made out. The cœliac axis divided into a right branch, which gave off the gastric and splenic arteries, and a left branch, the hepatic artery. The gastric artery passed rapidly to the lesser curvature along which it ran to the blind end of the stomach, where it anastomosed with the gastro-epiploica dextra, which ran along the greater curvature supplying branches to anterior and posterior surfaces, and at its end anastomosed, as stated above, with the gastric. From the splenic artery were given off several vasa brevia to the fundus of the stomach. The hepatic artery gave off its first branch to the head of the pancreas. Several of the small branches of this artery were followed down behind the pancreas, but were unfortunately lost before they could be traced to the end to see whether or not they supplied the duodenum. The next branch which came off from the hepatic was practically the key to the intestinal anomaly. At a point corresponding to the place at which normally the gastro-epiploica dextra (in this case sinistra) should have been given

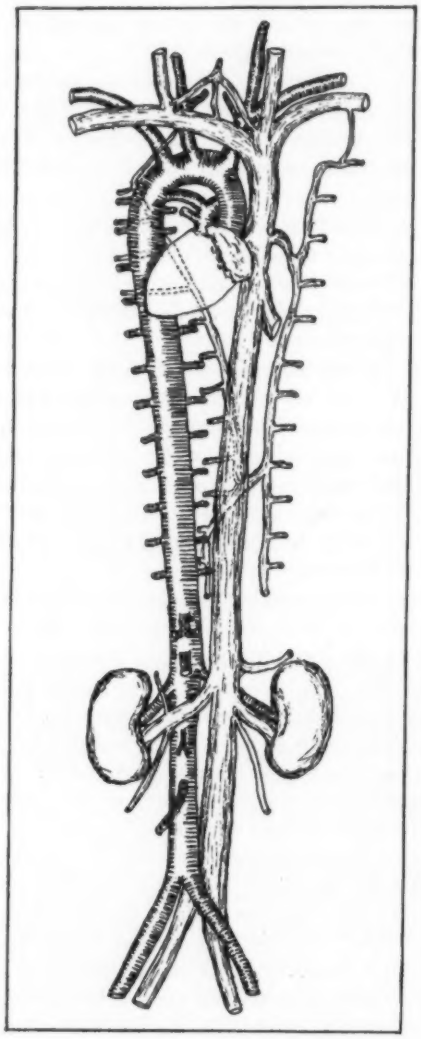

Fig. 2.

off, there was found a large artery which after giving off several small branches to the pancreas, sent the greater number of its branches to the accessory lobes of the pancreas, mentioned above. The pyloric branch of the hepatic artery was also absent. The hepatic artery, after giving off a small branch to the gall bladder, passed by two branches to the liver. As far as could be made out, the duodenum was supplied entirely by the superior-mesenteric artery.

The pulmonary artery came off from the left ventricle. It

gave off first the right pulmonary artery, which divided into two branches; next above, the ductus arteriosus; and lastly, the left pulmonary artery, which divided into three branches before entering the lung. In like manner there were three pulmonary veins on the left side and two on the right.

The vena cava superior was situated to the left of the vertebral column. The right innominate vein crossed in front of the right subclavian and carotid and the left innominate arteries to join the left innominate vein below the cartilage of the first rib, to form the vena cava superior, which was joined a short distance below by the vena azygos major. The inferior vena cava ascending on the same side emptied together with the descending vena cava into the left auricle. The vena azygos major drained the entire left intercostal region and anastomosed below with the ascending lumbar and above with the subclavian vein. The vena azygos minor superior drained

The pancreas was practically normal, except for one portion of the smaller accessory lobe, which consisted almost entirely of fibrous tissue with a few islands of epithelium scattered through it. The connective tissue was *particularly cellular* about these remaining alveoli, but showed no small celled infiltration.

The kidney, except for some uric acid infarcts, was normal.

The duodenum was practically normal.

The anterior wall of the stomach on section was seen to be thicker than the posterior, due to a difference in the size of the muscle layer, which was considerably thinner over the posterior wall. A section through the nodule at the pyloric end of the stomach showed a lumen in communication with that of the stomach. When traced through the serial sections the lumen was seen to bend over near the top of the nodule and to extend parallel with the stomach wall for a fraction of a milli-

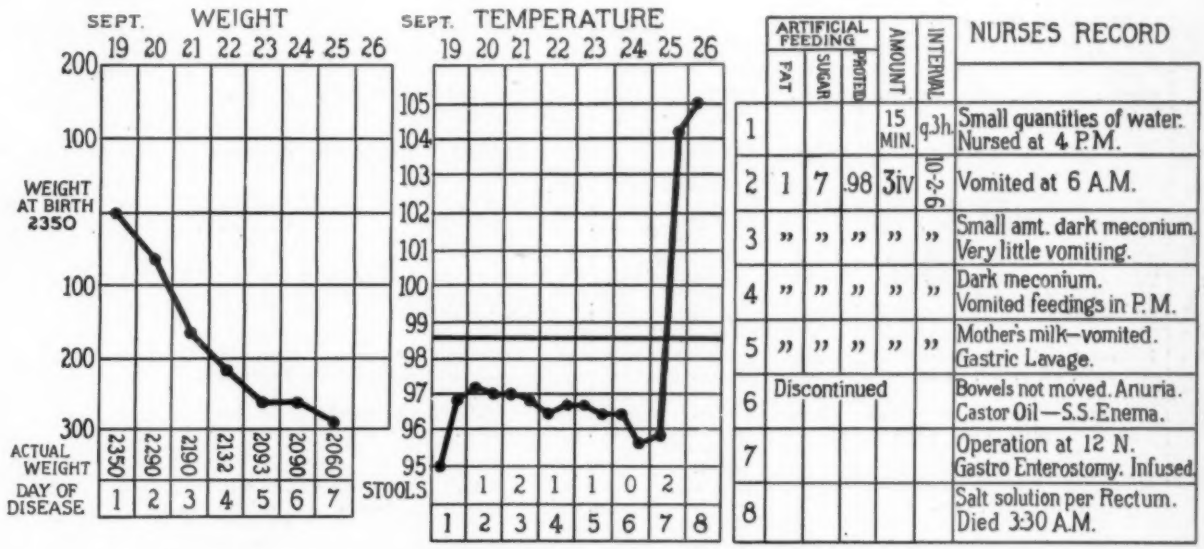
SEPT. WEIGHT
19 20 21 22 23 24 25 26
200
100
WEIGHT AT BIRTH 2350
100
200
300
ACTUAL WEIGHT
2350 2290 2190 2132 2093 2090 2060
DAY OF DISEASE
1 2 3 4 5 6 7
SEPT. TEMPERATURE
19 20 21 22 23 24 25 26
105 104 103 102 101 100 99 98 97 96 95
STOOLS
1 2 1 1 0 2
1 2 3 4 5 6 7 8
NURSES RECORD
ARTIFICIAL FEEDING
FAT SUGAR PROTEID
AMOUNT
INTERVAL
1 15 MIN. q.3h. Small quantities of water. Nursed at 4 P.M.
2 1 7 .98 3iv 10-2-6 Vomited at 6 A.M.
3 " " " " " Small amt. dark meconium. Very little vomiting.
4 " " " " " Dark meconium. Vomited feedings in P.M.
5 " " " " " Mother's milk—vomited. Gastric Lavage.
6 Discontinued Bowels not moved. Anuria. Castor Oil—S.S.Enema.
7 Operation at 12 N. Gastro Enterostomy. Infused.
8 Salt solution per Rectum. Died 3:30 A.M.

FIG. 3.

the 5th to 9th right, and the vena azygos minor inferior the 10th to 12th right intercostal spaces. These two veins joined and emptied into the major in the 9th left interspace. The right superior intercostal drained the upper four spaces and anastomosed with the vena azygos minor superior. The left draining the upper three was received into the major. The left suprarenal emptied into the vena cava, the right into the renal vein. The left spermatic vein joined the vena cava at the angle formed by it and the entering renal vein. The right joined the renal vein on that side.

Microscopical Examination.—The heart, lungs, and spleen were practically normal.

The liver cells showed considerable fatty change, and in some rather sharply defined areas the cells were filled with brownish black pigment. There was a slight increase in fibrous tissue about the portal spaces, and also focally throughout the section small areas of fibrous tissue were seen.

meter and then it gradually narrowed down and finally ended blindly. The lumen was lined by high columnar epithelial cells, with large vesicular nuclei lying at the very base of the cells which greatly resembled duct epithelium. Between the normal stomach epithelium and these cells there was an abrupt transition. The submucosa was made up of cellular fibrous tissue and in its outer portion ran small bundles of smooth muscle. On one side of the nodule the muscle layers of the stomach ended abruptly in a slight thickening, but on the other side the bundles grew gradually thinner and shaded off into the small bands of muscle that ran along the outer border of the nodule. Just to one side of the nodule there was just under the muscularis mucosæ a large island of gastric glands cut transversely. On tracing it through the series it spread out into the general lining of the stomach, and so represented merely a fold in the mucosa. The serous surface was everywhere intact and showed in that portion of the section near the

gastro-enterostomy wound a slight exudate of leucocytes and red cells.

Upon examination of the available literature it was found that as early as 1752 James Calder reported a case of atresia of the duodenum. The case in brief was as follows: "At section the stomach was found in good condition. The pylorus felt hard as though it contained something; on opening, a gland-like piece of tissue was found closely adherent to the wall all around, with no perforation anywhere. Below this the duodenum was double to about 1 inch above the jejunum." The next case was reported by Daniel in 1765, in which there was absence of heart, lungs, liver, pancreas, spleen, and left kidney. Beginning with the nineteenth century, cases were reported with greater frequency; but as practically all the cases of duodenal atresia up to 1901 were collected by Cordes, it has been thought best to tabulate only those cases in which atresia of the duodenum was present above the papilla of Vater.

Case No.	Reported by	Age.	Symptoms.	Location of Atresia.	Stomach content.	Intestinal content.	Liver and Pancreas.	Other Malformations.	Etiology.
1	J. Calder. Med. Essays, Edin., vol. I, p. 167. 1752.	0	0	Pyloric end of duodenum	0	0	0	0	New growth?
2	Daniel. Med. Gutachten, Leipzig, 1776, p. 276. 1765.	Miscarriage	0	Close to stomach.	0	0	Both absent.	Heart, lungs, spleen, left kidney absent.	0
3	Aubrey. Med. Chir. Ztg., Salzburg, IV, p. 269. 1808.	6 days.	Vomiting.	Above papilla.	0	0	0	Pancreatic duct absent. Bile duct ended in pancreas.	0
4	Crosby, Leonard. Asso. Med. Jr., No. 197. 1856.	4 days.	Vomiting. Small stool.	Above opening of common duct.	Brownish fluid and blood clot.	Meconium.	Normal.	0	0
5	Wilks. Trans. Path. Soc., London, XII, p. 102. 1861.	38 hrs.	Vomiting meconium at intervals.	Immediately above Papilla of Vater.	Greenish fluid.	Meconium.	Normal.	0	0
6	Hirschsprung. Schmidt's Jahrbuch, 117, S. 310. 1861.	5 days.	Vomiting (like meconium.) Meconium stool	Above papilla.	Dark green semi-fluid material.	0	Liver normal Pancreas 0.	0	0
7	Hervey. Bull. Soc. Anat., Paris, XLV, p. 338. 1870.	5 days.	Vomiting (coffee-ground). No stool.	Above papilla.	Thick black material and milk curd.	Meconium.	0	0	0
8	Hempel. Jahrb. f. Kinderheilkunde, VI, p. 381. 1873.	5 days 20 hrs.	Vomiting. Scant stool.	Middle of vertical portion.	Pale, grey, opalescent fluid.	Meconium mushy green	Liver normal Pancreas 0.	0	0
9	Theremin. Deutsch. Zeitschrift f. Chir., VIII, p. 34. 1877.	4 days.	Icterus. Vomiting. Meconium stools.	Above papilla.	Coag. milk. mucus.	Meconium.	0	0	0 0
10	Silberman. Jahrb. f. Kinderheilkunde, X, p. 385, 1882.	4 days.	Vomiting, yellow. Meconium stools.	Above papilla.	Milk.	Bile stained mucus.	Liver enlarged. Pancreas normal.	0	
11	Emerson. Archives of Pediatrics, Philadelphia, VII, p. 684. 1890.	4 days 10 hrs.	Vomiting, dark-brown, greenish, watery fluid.	Just above papilla.	Dark grumous fluid.	Empty.	0	0	0
12	Northrup. Archives of Pediatrics, Philadelphia, VII, p. 684. 1890.	0	0	Just above papilla.	Little mucus or meconium	Bile-stained mucus.	0	0	0
13	Rosenkranz. Inaug. Dissert. Med. Facult., Königsberg, Preussen. 1890.	4 days.	Icterus. Vomiting breast milk. Meconium stools.	Above papilla	Semi-fluid.	Almost empty.	0	0	0
14	Porak and Bernheim. Bull. Soc. Anat. de Paris, LXVI, p. 230. 1891.	5 days.	Vomiting black material. Passed no meconium.	Above papilla.	0	Meconium.	0	0	0
15	Hobson. Brit. Med. Jour., p. 639. 1893.	3 days.	Vomiting mucus.	Above papilla.	Ruptured into peritoneal cavity.	0	0	0	0
16	Collum. Tr. Soc., Path. Lond., XLVI, p. 60. 1894.	6 days.	Vomiting milk. Meconium per rectum.	Above papilla.	0	Meconium.	0	0	0
17	Markwald. Münch. Med. Wochenschr., No. 14, p. 265. 1894.	4 days.	Vomiting.	Above papilla.	Small amount of glairy mucus.	Meconium.	Irregular lobulation of liver.	Atresia œsophagus and rectum.	Inflammation of mucosa of stomach and duodenum.

Case No.	Reported by	Age.	Symptoms.	Location of Atresia.	Stomach content.	Intestinal content.	Liver and Pancreas.	Other Malformations.	Etiology.
18	Champneys. Brit. Med. Jr., Mar. 20, p. 718. 1897.	5 days.	Jaundice. Vomiting watery yellow fluid.	Just above papilla.	0	Meconium.	0	0	0
19	Mace. Bull. de Soc. Obst. de Paris, 1899, p. 2. 1899.	3 days.	Vomiting fluid.	Above papilla.	0	0	0	0	0
20	Wyss. Brun's Beiträge zur Klin. Chir., p. 631. 1900.	6 days.	Vomiting of meconium. Small amount meconium per rectum.	Between upper and middle portion. Above papilla.	Meconium, black material and gas.	Meconium.	Liver large and bright red. Pancreas normal.	Vascular. Club-foot.	Absence of pancreaticoduodenal artery.
21	Wyss. Brun's Beiträge zur Klin. Chir. p. 631. 1900.	1¼ days.	Vomiting blood a few times.	Above papilla.	0	0	0	Hydrorrachis.	0
22	Sick. Münch. Med. Wochenschrift, 47, I, p. 170. 1900.	0	Vomiting.	Above papilla.	0	Meconium.	0	0	0
23	Maygrier and Jeannin. Bull. de Soc. Obst. de Paris, III, 112. 1900.	5 days.	Vomiting of all nourishment. No stools.	Above papilla.	0	Meconium.	0	0	0
24	L. Cordes. Archives of Pediatrics, Vol. 18, p. 401. 1901.	4 days.	Vomiting yellow fluid and nourishment.	Just above papilla.	None.	Meconium.	Normal.	0	Developmental error.
25	Katz. Bull. et Mém. Soc. de Paris, LXXVI, p. 471. 1901.	6 days.	Vomiting brown material.	Near pylorus.	Brown viscid fluid.	Meconium.	0	0	0
26	Voron. Lyon Médicale, CII, p. 727-736. 1904.	5 days.	Vomiting milk. No bile. Passed meconium.	Above papilla.	0	Meconium.	0	0	0
27	Little and Helmholz.	7 days.	Vomiting amniotic fluid right after birth, and later nourishment. Meconium passed with increasing amount of bile.	Absence of pylorus and duodenum as far as papilla.	Gas and small amount of greyish mucus.	Bright yellow semi-fluid meconium.	Liver fatty and focal sclerosis. Pancreas accessory lobes.	Situs transversus. Vascular.	Absence of superior pancreaticoduodenal artery of pyloric, and of gastroepiploica sinistra.

In all the cases which have here been tabulated, with one exception, that of Calder in 1752, the atresia was some distance below the pylorus, and as a result of the constriction being so placed there was not only a greatly dilated stomach but also a distended proximal portion of the duodenum, as large or larger than the stomach. Between these two large sacs there was a constriction due to the pyloric band of muscle, which gave the typical hour glass appearance. Further, in no case was there a complete absence of a portion of the bowel, but merely an obliteration of the lumen for a longer or shorter distance. Lastly, all the cases had in common some structure connecting the proximal and distal portions of the duodenum. In a number of instances in which the connection was described as a strand of fibrous tissue, Wyss believes that microscopic examination might have revealed a small lumen lined by epithelium, thus representing a very much constricted and atrophic portion of the bowel.

The present case differed quite markedly from the rest: 1. There was but a single large sac, proximal to the atresia. 2. There was an involvement of both the duodenum and pyloric end of stomach. Not only was there an absolute absence of connection between the proximal and distal portions of the bowels, but also a complete disappearance of the pylorus and of the duodenum as far as the papilla of Vater.

To explain atresia occurring along the intestinal canal a great number of theories have been advanced. As early as 1839 v. Ammon put forward the theory that this condition was due to an error in development, being an arrest of development at a period when the alimentary canal still consisted of two parts. Since the great advances in embryology this theory in its completeness can no longer be held, though error in development of a different nature may still in an indefinite way be held responsible for this malformation. In 1858, Streubel, and somewhat later Valenta, sought to explain atresia by volvulus, especially when the loop of intestines was filled with meconium, which prevented its return to the normal position. This secondarily set up a peritonitis. Then in the eighties Schottelius and Silberman suggested a primary peritonitis most probably of luetic nature, as the most satisfactory causal agent in this condition. Abnormally long persistence of the omphalomesenteric duct, traction due to hernia, and embolism of the superior mesenteric artery, have been

advanced in individual cases to explain atresia. Lastly, circulatory disturbances, both changes in the arteries due to disease (Küttner) and congenital absence of arterial branches (Wyss) were suggested. In one of the cases reported by Wyss the absence of an arterial branch explained the condition.

This last idea seems to offer the most plausible explanation for the conditions found in the present case. The pancreaticoduodenalis superior, the gastro-epiploica sinistra, and the pyloric branch of the hepatic artery are absent, and the gastrica and gastro-epiploica dextra anastomose with one another over the blind end of the stomach. Apparently as a result of this lack of blood supply there has been a complete disappearance of the pyloric portion of the stomach and of the duodenum as far as the papilla of Vater, although at some time in embryonic life the continuity between stomach and duodenum must have existed.

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A CASE OF CONGENITAL URETHRAL STRICTURE ASSOCIATED WITH HEMATURIA AND SYMPTOMS SUGGESTING RENAL DISEASE.

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Congenital stricture of the urethra, though a condition by no means unrecognized, is sufficiently rare to be always of interest. The cases, moreover, presenting urethral stricture in which a *positive* diagnosis of its congenital nature can be made must always be only a small proportion of those cases in which such a diagnosis seems *probable;* for, with a urethral stricture in a patient past puberty (or indeed even in younger patients) we must have also a perfectly negative urine examination before post-inflammatory or post-traumatic stricture can be excluded. And it is notorious how rare perfectly normal urines are, particularly in the out-patient departments where these cases are usually studied. If the urine shows signs of a previous urethritis, that urethritis cannot be excluded as the cause of the stricture; and, though there might be other reasons for considering its congenital nature probable, such a diagnosis, with shreds in the urine, could never be positive. For these and other reasons the condition, though usually recognized in the text-books, is almost always said to be a rare one. "Extremely rare," White and Martin call it; Treves, in his discussion of urethral stricture, does not mention it; Walsham admits that "a few cases are congenital;" and Sir Henry Thompson, in his clinical lectures, says nothing about it. If the whole subject has received such scant consideration, it is obvious that any associated clinical features have been either unobserved or unrecorded.

The patient here reported was a white boy 13 years old, who came to the genito-urinary clinic of the Johns Hopkins Hospital during the winter of 1904-1905. His complaint was pain in the left side after urination and the passage of blood clots with the urine. He had one brother living with tuberculous disease of the hip, but his family record was otherwise a good one. His own previous history was negative. Bronchitis and mumps were the only acute illnesses from which he had suffered, and previous genito-urinary trouble (either venereal or otherwise) was emphatically denied. Though his previous health had been good, his disposition had never been energetic and he had complained to his mother frequently of "feeling tired." The onset of the present illness occurred suddenly four days before admission, up to which time he had had no urinary symptoms. It was attributed by the patient to severe muscular strain (lifting a heavy weight in the store in which he worked), and the first symptom was a sudden uncontrollable desire to micturate. This was followed, when urination occurred, by severe urethral burning and the urine passed was seen to contain clots of blood. Pain in the left side, about over the ureter, was present during the passage of the clots, and also subsequently. It was of a stabbing character. These attacks were repeated practically every time the patient passed his water during the next four days. At times blood was absent and then the pain was less. At other times hematuria was marked.

On admission the examination of the patient was almost negative. His general physical condition was good and his genitalia normal except for a small meatus about the size of a pin-head. There was slight tenderness on pressure over the bladder and particularly over the course of the left

ureter. The urine was cloudy, containing epithelial cells and leucocytes, but neither red blood corpuscles nor organisms. It was acid in reaction, but examination for tubercle bacilli was negative. A meatotomy was done to make subsequent urethral exploration possible and the case was thought to be probably one of disease (tuberculous or calculous) of the left ureter or kidney. As no blood could be found in the urine at this examination, it was thought that the patient had probably mistaken high coloration for hemorrhage. An X-ray photograph was taken of the left side and proved negative, as did also a second examination of the urine for tubercle bacilli. On the second and third visits the urine was again negative for blood, though the patient claimed that, at home, he still occasionally passed some, and that some pain was still present along the ureter. On the fourth visit the patient was suddenly taken in the dispensary with an attack of nausea and vomiting, accompanied by pain over the bladder and left ureter, and by the passage of clouded, bloody urine. This attack was, he said, similar to those he had been having. A cystoscopy was immediately attempted in order, if possible, to determine the source of the hemorrhage, but it was impossible to insert the instrument more than ½ inch into the urethra beyond the meatus. A small No. 10 F. rubber catheter could be passed into the bladder with difficulty. The patient was sent into the hospital to allow him to recuperate from his attack and to have him given tuberculin. During the first two days of his stay in the hospital he had some pain in the sides and some hematuria. On the third day his urethra was again examined with instruments and it was found that there were two points of distinct narrowing—one about ½ inch behind the meatus and running ¾ inch. back along the urethra, the other in the bulbo-membranous urethra. A filiform and No. 8 F. follower were passed with some difficulty; and all instrumentation caused severe burning pain when the tip of the instrument reached and was passing through the prostatic urethra, in spite of anæsthetization with 4 per cent cocain. A diagnosis of stricture (probably congenital) was made, the patient was put on urotropin and dilation advised. The urine at this time contained large numbers of leucocytes, a few epithelial cells, a few red blood corpuscles, but no organisms. The patient was complaining of some frequency of micturition at night and examination by hydraulic distension showed a moderately contracted bladder. Gradual dilation with sounds was then instituted, instruments being passed every day, always with cocain anæsthetization, without which they could not be borne, and even with which severe burning pain was always noticed when the sound passed through the prostatic urethra. The symptoms disappeared almost as soon as sounding was started and they did not reappear. Three features of the urethral narrowings were noticed during the sounding which were different from the more usual characters of inflammatory stricture. In the first place, progress in dilation was extremely slow; in the second place, examination of the urethra with a bulbous bougie showed a narrowing of the lumen extending along the urethra for about ½ inch at the sites of both "strictures" with an unroughened urethra between—rather than a localized cicatrix (causing a definite "catch" on the acorn of the bougie) with definite secondary roughenings along the urethra characteristic of inflammatory stricture; and thirdly, the spasmodic character of the posterior stricture was quite marked, the instrument always being difficult to insert until pressure had been exerted for a while and always causing a burning pain. The patient was kept in the hospital for four weeks, but no good tuberculin being obtainable the test was not applied. Dilation was, however, kept up (every day for two weeks, then thrice weekly) and urotropin administered internally. On discharge symptoms were still absent and the urethra could accommodate a No. 16 F. sound. The urine was clearing but still contained a few pus and epithelial cells. Two months later dilation had progressed until a No. 20 sound could be passed. The boy was still perfectly free from symptoms. On account of the expense urotropin had to be abandoned and methylene blue was substituted for it. The day after its adoption the boy showed, immediately following his instrumentation, typical symptoms of cocain poisoning, except that the pulse remained slow and good. The usual amount and strength of cocain had been used, but the patient had failed to void after instrumentation. He became irrational, complained of great weakness and nausea, and sweated profusely. He was immediately catheterized and then given atropine and morphine subcutaneously. Nausea and weakness persisted, and as the patient complained much of a bad taste in his mouth with eructation his stomach was washed out. It was found to contain a strong solution of methylene blue. After lavage with large amounts of water the symptoms improved, the bad taste disappeared, and the patient soon recovered entirely. One week later the urethra could accommodate a No. 22 F. sound and symptoms were entirely absent. The urine was perfectly clear, contained neither shreds nor cloud, was alkaline in reaction, contained no albumen, and was negative microscopically. A stained centrifugalized specimen from the third glass showed some meatal organisms lying in squamous epithelial cells, but there was no sign of bladder infection. Cystoscopy was attempted, but the cystoscope (No. 24 F.), though it passed the anterior urethra easily, caught in the prostatic portion where the contact of its tip occasioned severe burning pain.

It is not at first sight easy to offer in this case a satisfactory pathological explanation for the symptoms. Hemorrhage is, of course, a not infrequent accompaniment of inflammatory urethral stricture, and it is clear enough how, in these cases, granulation or other features of an inflammation might be the source of blood in the urine. If the stricture is, however, a congenital one, there seems to be no good pathological reason why hematuria should be a clinical feature. Mere narrowing of the urethral lumen without the presence of granulations or other features of inflammation would not, it would seem, account for bloody urine. It seems probable,

however, that the blood in this case came from the verumontanum. Hemorrhage in chronic urethritis not infrequently makes its appearance late in the course of the disease, and the blood is passed by such patients in the last act of micturition when the prostatic urethra is vigorously compressed. Moreover, topical applications of silver nitrate and other caustics—made by means of an instillator which reaches into the prostatic urethra—quite often stop the hemorrhage. So that bleeding from the verumontanum in inflammatory conditions of the prostatic urethra does occur. It is also seen as an independent condition without the association of inflammation as a cause. During the winter of 1903-1904 I saw in the practice of Dr. Young a patient who was brought to him for hematuria without cause or accompanying symptoms. The boy—13 years of age—had been passing blood for some time, but he had no pain or other trouble suggesting kidneys or ureter as the source of the blood. He denied venereal infection and the absence of shreds in the urine corroborated this denial. Cystoscopy showed a normal bladder and the urine from both ureters was clear. When the cystoscope was pulled well out so that its window commanded the prostatic urethra a large, swollen, and hemorrhagic verumontanum could be seen. This was evidently the source of the hemorrhage.

There is, then, abundant clinical evidence to show that bleeding may occur from the verumontanum, and it is noteworthy that in this patient *every time the sound passed over the verumontanum there was severe stinging and burning pain.* In other words, just those clinical features were present which we should expect if the colliculus seminalis were enlarged and inflamed. Such an enlargement *does* occur and is one of the forms of congenital stricture described in the literature. Ziegler, in his account of the genital malformations seen at birth in the male, says: "An abnormal narrowness may exist in a portion of its (the urethra's) course or throughout its whole extent. *Its lumen may be compromised by an hypertrophy of the colliculus seminalis.*" There is then good ground for assuming that the hemorrhage in this case came from an enlarged verumontanum.

The interesting features presented by the case reported may be summarized as follows:

1. This patient presented a urethral stricture in which a positive diagnosis of its congenital nature could be made. Such a diagnosis was warranted by: (a) The history, from which all record of urethral traumatism or of venereal infection was absent. (b) The association of an obvious congenital stricture at the meatus. (c) The complete cure of the clinical manifestations by proper treatment of the stricture. (d) The presence of clear urine and the absence of symptoms after the actual stricture had been dilated.

2. The second point of interest was offered by the clinical symptoms presented. These were nausea and vomiting, hematuria, and pain over the left ureter. They suggested renal or urethral disease, and obscured the diagnosis which was really only cleared up by the therapeutic test.

3. In the third place, this case suggests that another item must be added to our already long list of causes for hematuria, and that congenital stricture may be associated with blood in the urine, the source of which may probably be an hypertrophied verumontanum.

SYNESTHESIA.[1]

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The subject of synesthesia, for many years, has attracted a good deal of attention in Germany, France, England, and Italy, and latterly a number of cases have been reported in America. The phenomena of this interesting condition are known as "secondary sensations," or "associated sensations," by which are meant constant and involuntary subjective impressions associated with actual perceptions. Synesthesias are found in many persons to a limited degree, but cases showing numerous and well-marked features are exceptional and always of interest.

Not a few individuals experience a shivering sensation at the squeak of a pencil as it is drawn over a slate, or at the sound produced by the tearing of a piece of linen. Others have their teeth put on edge when the filing of a saw is heard. Such sensations are spoken of as *sound feeling.*

Color hearing or *sound seeing,* as it is sometimes called, is among the rarer types of associated sensations. It is the constant and involuntary visualization of color associated with some definite sound. Goethe and Hoffman were among the early observers who referred to the existence in certain people of this peculiar faculty. Sachs in 1812 published an account of the phenomena as possessed by himself and his sister. Nussbaumer first excited general interest in the subject by a description of his own case before one of the scientific societies in Vienna. An eminent neurologist, who was present, considered his sensations as pathologic and predicted some oncoming mental disturbance. Nussbaumer, however, remained well. In 1881 Bleuler and Lehmann, the former of whom had the idiosyncracy, reported the result of their inquiries among 596 normal individuals. They found that 12.8% of these were more or less synesthetic. Among other observers may be mentioned Galton and Fechner, and, in America, Baldwin and Miss Calkins. Flournoy's book "Des

[1] Read before the Johns Hopkins Hospital Medical Society, February 6, 1905.

Phenomènes de Synopsie," contains a most exhaustive study of the subject.

Color sensations remain constant in the same person but vary in different individuals. For example, the sound of the vowel *a* is red to one, blue to another and black to a third. Colman has shown conclusively that the colored alphabet used in teaching children their letters has nothing to do with color audition. In one family all of the members were synesthetic, and had learned their letters out of the same book but possessed nothing in common in their color associations. The deeper vowel tones usually suggest the shades, and the higher vowel tones the tints of colors.

Again, the kind of sound giving rise to color sensations varies for different individuals. In one case color sensations are produced by the vowel sounds, in another by the tones of a speaker's voice, while many associate musical tones, the days, numbers, months, seasons, odors, taste, and touch with corresponding colorations. Some people when reading rapidly, can detect misspelled words by the wrong color impressions received.

When light instead of color is associated with sound we have what is known as photism; when a color, or some definite image, suggests a sound we have phonism. Cases of singers have been cited who could pitch their voices accurately when they thought of the corresponding tint or shade of color, and certain violinists have been known to tune their instruments by employing a similar method. Galton reports the case of an individual who could read the colors of a gaily decorated wall-paper as syllables and sounds.

Color hearing may prove annoying and confusing. The inevitable color sensations associated with tones destroy in the minds of some subjects the strains of music, and the incessant play of colors seen while reading or writing is most irritating to others.

Another interesting but more common type of synesthesia is known as the *number-form*. It is characterized by the visualization of serial numbers, dates, important events, etc., as occupying definite geometric positions in space. Such a condition opens up a wide range for the formation of mental diagrams or symbols, which are so far-reaching that to the average mind they are as inconceivable as is space itself. They are usually circular, spiral, or wave-like in shape and are peculiar to the impressions of the possessor. They serve as ready reminders of past occurrences and are generally helpful in mental calculation and memorization, but for higher mathematics and abstract speculation they are, in the main, a hindrance.

As to the true nature of synesthesias, nothing positive is known. Neiglicki and Steinbrügge regard the phenomena as pathologic; on the other hand, Chabalier, Urbantschitch, and Baldwin consider them to be strictly physiologic. Ziehen says that synesthesias are more common among the sane than among the insane. Baldwin states that "synesthesias of all sorts cannot be considered specifically abnormal, certainly not morbid, but belong to the realm of the unusual and idiosyncratic, within which explanation is difficult"; he adds that, "although subjective, they are not hallucinations."

Heredity is a proven factor since the condition has been observed in two or more generations of the same family. Males appear to be more frequently affected than females, yet in the latter the color visualization is the more intense. The photisms, color-hearing, and phonisms of early life are more vivid and last longer than those acquired during adolescence, and all tend to grow less distinct with advancing years. The number-form seems to exist throughout life unchanged.

HISTORY OF CASES.

The synesthetic family to which I shall refer more especially includes the father and all of his children—three daughters and two sons.

CASE 1. Mr. G., a clergyman, aged 49 years, is a man of high attainments but of a retiring disposition. He states that since his early childhood he has associated the sound of each letter of the alphabet with a definite color value. The letters *f, j, k, r,* and *x* are a reddish-brown; *o* and *c* are snow-white; *a, d, g, n, s, q,* and *u* have the appearance of glycerin. The remaining letters are of a dull lead color, shading down to black. When a little boy he was laughed at by his older brothers and sisters because he "anxiously asked them" why a certain bay horse was given "the white name of Charlie."

Words receive their color almost entirely from capital letters. He does not know of a similar affection in any of his antecedents, but his niece, a sister's daughter, has the color audition form of synesthesia, and also the involvement of the pain sense. A vivid purple, she says, is seen when she is suffering intense pain.

Mr. G. has never mentioned his associated color sensations to his niece or his children, which goes far to prove that he is unduly sensitive about his idiosyncracy.

CASE 2. Miss A., aged 23 years, is the oldest daughter. She is a clever young woman, a teacher in one of the large female institutions of the South, and, incidentally, is fond of matters psychologic. She, and, indeed, all of her brothers and sisters seem to have inherited their father's quiet and rather shrinking nature. My attention was first directed to the study of synesthesia by her somewhat startling questions: "Why are the keys of the piano colored in my mind?" and, "Why is it I sing or play anything familiar by color?"

Before she learned the alphabet she refused to call her mother "mother" because the name looked ugly to her; she preferred "mamma" on account of the more cheerful and pleasant color association.

The letters of the alphabet assume no definite form but come out on a light background as they are spoken; some of them are transparent, most of them are opaque, all are colored.

Words, whether thought of, heard, or written, get their color, as a rule, from the prominent initial letter sound. "Gray words" are due to the "g" sound, as *gray, grief, get,* etc. "Yellow words" have a prominent "s" or "*y*" *sound,* as *sweet, Xerxes, yonder,* etc. "Blue words" have the "l" sound, as *love, law, light,* etc. "Sunlight words" have the

"c" sound, as *child, chair,* etc. When she wishes to recall a name, tune, or any event, she first thinks of the associated color. The names of the seasons, months, and numerals, in fact all names, possess their characteristic coloring in her kaleidoscopic brain.

The higher musical tones are light in color, the deeper tones are dark, and the deepest are black. Some tunes are disliked because of unpleasant color associations. Melodies learned in her childhood retain the most vivid color effect, in fact, in all of my cases the earliest color impressions are the most distinct. The *tactile,* the *temperature,* and the *pain sense* are all involved but the stereognostic sense is normal. Hard objects when touched are dark in color; soft objects are light. If she feels something hot a dark gray is seen, if a piece of ice is grasped, white is promptly visible. A dull pain is of a dark lead color, a sharp pain is of a light steel color.

Case 3. Miss M., aged 22 years, is the most practical of the three sisters. She has an excellent memory for details and dates in general. She tells me that she has often lost her temper with her sisters because their color impressions were entirely discordant with her own. *Words* are colored by each letter which retains its individual color index.

She possesses to a marked degree the number-form of synesthesia. The numerals, whether counted in English, Greek, Latin, French, or Japanese, occupy the same fixed positions in space. She likes numbers as a general rule, particularly 3 or its multiples. The months of the year group themselves in a circular fashion and are comparable to the hour-marks on a clock dial. The hour-mark 5 is in the middle of January, 4 in the middle of February, etc. The alphabet, the list of the kings of England, the multiplication table, the catechism, and any series of important dates has each its specific mental diagram. These diagrams she and her younger sister call "roads," and once clearly visualized, they do not tend to fade, but serve as a ready means for memorization and recollection.

Tunes are not colored, but the keys of the piano are, and possess more or less human characteristics.

When an object is put into her hand she at once obtains a true mental image of its *form;* then follows an associated *color sensation.* For example, when a nickel was put into her hand, her eyes being shut, she said, "I feel a coin about the size of a nickel, but it is of a dark brown color." This phenomenon, as I take it, shows involvement of the *stereognostic sense.* The *pain sense,* the *temperature sense,* and the *tactile sense* are all slightly involved in her case as well as in that of her younger sister.

Case 4. Miss L., aged 20 years, has many accomplishments. She is clever with her brush, writes music, poems and short stories of more than usual merit. She has color hearing and the number-form both developed to a remarkable degree, and as noted in the cases of her older sisters, numbers, letters, and all words are associated with colors. The coloration of her words is due to the overlapping of the colors of the component letters. Capitals are more highly tinted or deeply shaded than are the corresponding small letters. In her case the consonants take on brighter hues than the vowels—the reverse being usually the rule. During early childhood she formed likes and dislikes for certain letters and numbers. "S" is a jolly, companionable letter; "d" is gloomy and unfriendly. Kindly letters are yellow and red, those "not fancied" are blue and purple.

The keys of the piano are colored, the high tones are light, the medium tones are dark, and the lowest are black. The key of F is green; that of G is yellow, and of C is blue. It is interesting to note that the colors of these musical letters do not agree with the coloring of the corresponding letters of her alphabet. She writes me that the G and D chords always make war upon the C chords, which are protected by the F chords. The figure 5 is a pleasant one. The figure 6 has always been disliked.

Numbers, serial events, poems, etc., that have been committed to memory, have, as in the case of her older sister, their characteristic "roads." These roads are usually seen in "rooms" which are bounded by points of the compass. The inherent tendency to arrange the points of the compass around her mental images—with a good deal of originality—she terms her *direction sense,* and she refers to it as one of the earliest dictates of her consciousness. The relation of the points of the compass varies but is constant for the associated concept. This is well shown in her mental diagrams for the "direction sense" of all the books she has read. When she thinks of the human body, certain books, sewing, painting, etc., she imagines herself as facing the southwest, but when embroidering and other acts are thought of she must face in the opposite direction. Curiously enough, the Hymnal and the Prayer-Book face from opposite directions, though she has been accustomed to see them bound together. When thinking of the months she sees a clock-dial diagram that of course is peculiar to herself.

Case 5. E., a youth of 17 years of age, is of less interest. The coloration of his alphabet is not vivid, and his *word coloring* is distinctly independent of the colors of the individual letters. Numbers are not colored, and the number-form of synesthesia is wanting. This boy is very intelligent and stands first in all of his classes.

Case 6. Master F., 14 years old, is an unusually clear-headed and logical youth. He has a goodly store of grotesque mental diagrams, which greatly aid him in his mathematical work and in recollecting facts. His clock-dial diagram is elaborate and embraces the seasons, the months, and indistinctly, the days of the months and of the week. He has no color sensations associated with sounds.

Summary.

The sensitive nature of Case 1 and his children reminds us of the advice given by Galton, viz., that synesthetic children should not be punished by teachers or teased by their playmates when they refer in all sincerity to their associated

sensations. Case 2 presents color audition, photisms, phonisms and involvement of the temperature, tactile and pain senses. Case 3 has a combination of color audition and the number-form of synesthesia and the involvement of the stereognostic sense. Case 4 is notable for the association of human characteristics with certain numbers, colors, and musical tones, and for the very odd mental diagrams. Cases 5 and 6 show fewer variations. The senses of smell and taste are not involved in any of the cases. Among other points worthy of note are the following: the direct transmission of synesthesia from the father to all of his children; that the color sensations are dissimilar, and those formed in early youth are more intense than those acquired later in life, and, that all tend to fade in time. On the other hand, the mental diagrams of the number-form remain unaltered, and serve as strongholds wherein past impressions are arranged in an orderly way and can be passed in review at will. Finally, all of our cases are, from an intellectual standpoint, far above the average; and are sane, healthy, and happy.

In conclusion, I desire to say that though the literature on synesthesia is abundant, relatively few contributions have come from general medical men. I believe that more careful study on their part would add something to the psychologic data and would not be void of practical results.

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CORRESPONDENCE.

KNOWLEDGE OF GREEK AND CORRUPTION OF LANGUAGE.

NEW YORK, April 7, 1905.

EDITOR JOHNS HOPKINS HOSPITAL BULLETIN:

Sir:—The following remarks may be of historical interest and very timely at the present state of our disgraceful appendicitis, oophorectomy, gastro-saccharorrhœa onomatology:

Two men, the great physician, philologist, and noble patriot, Adamantios Koraïs, and a German physician, L. A. Kraus, almost simultaneously—about eighty years ago—made some remarks, the one on corruption of language, the other on the necessity to a physican to know Greek, which may be of interest at this present time.

Koraïs wrote: *Νομίζω ὅτι ἡ διαφθορὰ τῆς γλώσσης εἶναι συγγενὴς νόσος τῆς διαφθορᾶς τῶν ἠθῶν καὶ κατὰ τοὺς ἱπποκρατικοὺς κανόνας ζητεῖ καὶ συγγενῆ καὶ παρομοίαν θεραπείαν.*

(I consider that the corruption of language is a disease closely allied to corruption of manners, and demands also, according to Hippocratic canons, a similar course of curative treatment.)

L. A. Kraus: Pfuscher kannst Du ohne Griechisch werden, aber glaube mir, nie ein sicherer Arzt. Wer nur einigermassen die Erfordernisse zu einem Arzte, welcher mehr als jeder andere Mensch alle Lebenssphären so tief als möglich erkannt haben soll, zu begreifen vermag, muss zugeben, dass selbst der relativ beste Arzt (denn einen absolut guten kann es ja nicht geben) ohne Griechisch, ein noch viel besserer sein würde, wenn ihm dieser unschätzbare Vorzug der höheren Ausbildung vor dem gemeinen niederen nicht abginge.

A. ROSE.

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May 1, 1905.

Analysis of 221 Cases of Typhoid Fever. Dr. W. L. Thompson, Worcester, Mass.

The epidemic had started among workmen in one of the suburbs of Boston, and was traced definitely to a privy infection. The cases were treated at the Boston City Hospital. The majority were males and ranged in age from 8 to 63. Sixty-five per cent were in the first three decades of life and five per cent gave a history of previous attack. A motley array of symptoms was seen at the onset, but deafness was initial in 3 cases. The febrile period varied from 7 to 86 days and relapses occurred in 21 cases. Rose spots were present in 69 per cent, sweats were a striking feature in 2 cases, and herpes was noted in 1 case; 23½ per cent showed a subnormal leucocyte count. Myocarditis was marked in 2 cases, thrombosis was seen in 7, infarct of the lung in 1, and parotitis in 2. Nausea and vomiting were troublesome in 5. Hemorrhage occurred in 22 patients, distension was marked in 23, and in 2 cases perforation occurred—both fatal. The spleen was palpable in 69 per cent of the cases noted. True catarrhal jaundice was present in one case. Four showed epistaxis, 3 pleurisy, and 7 bronchitis. The ear was most often affected of the special sense organs. Retention of the urine occurred in 6 cases, acute nephritis in 2. Cystitis was seen three times, hematuria twice. Two patients showed acute mastitis. One patient went to term normally during the disease and was delivered without event. Necrosis of the nasal septum was seen once. The Widal reaction was positive in 93 per cent of the cases noted. The mortality of the series was 12 per cent. The features exhibited by the cases were the frequency of a typical typhoid state, the notable implication of the central nervous system, and the inefficiency of sponging as compared with treatment by tubs.

Painful Heels. Dr. Baer.

Dr. Baer reported 5 cases of this condition. The first was a man of 18 who had had gonorrheal urethritis three months previously and whose discharge was still present on admission. Both heels were extremely painful, no flat-foot was present, and the radiograph showed exostoses beneath the os calcis on both sides. They were both removed by operation and cure was complete. The second patient complained of pain in heels and ankles. There was history of an attack of gonorrhea 9 months previously. The os calcis was found thickened but the patient refused operation. In the third case there was pain in the heels and back. The patient had had three attacks of gonorrhea. There was a spot of extreme point tenderness at the attachment of the plantar fascia. The exostoses were removed by operation, and though cultures were negative the sections showed diplococci which decolorized by Gram. The fourth patient denied gonorrhea but had had an inguinal bubo. Pain in the heels had been present for several months. There was tenderness on pressure over the heel and on stretching the plantar fascia. The radiograph showed exostoses. These were removed and a pure culture of the gonococcus grown from them. In the fifth patient exostoses were removed but were sterile on culture. Operation, however, gave complete relief.

The primary seat of the deposit in these cases seemed to be in the plantar fascia, from which there was a downgrowth into the periosteum. The exostosis was always situated at the attachment of the plantar fascia, but in some of the cases there was also thickening of the sides of the os calcis. Motions were not limited, but there was a characteristic gait, the heels being used little or not at all. When the spine was affected the symptoms were those of an osteo-arthritis. In the two cases in this series in which the spine was affected as well as the heels, gonococci were found in the growths removed from the heels.

Atheromatous Cyst of the Scrotum. Dr. Churchman.

The patient was a colored man, aged 41. The tumor had been present since early boyhood. It lay in the raphe of the scrotum, was freely movable under the skin, and was a little larger than the testicles, though resembling them in shape. It had no definite pedicle. There were no symptoms accompanying it. The tumor was removed under cocaine and proved on section to be an epithelial-lined cyst containing cholesterin crystals and epithelial cells, but no true dermoid elements.

Bladder Calculus in an Infant. Dr. Churchman.

The patient was a male, 19 months of age. He was healthy and sturdy, but had had for four months hematuria with straining pain at stool and on micturition. By means of a small searcher a stone was located in the bladder. The patient had not yet been operated upon. No case of stone in the bladder in so young a patient had occurred in the 80 cases seen at the Johns Hopkins Hospital.

Congenital Urethral Stricture. Dr. Churchman.

This patient was a boy, aged 13, who had come to the clinic complaining of hematuria and pain over the ureter with nausea and vomiting. Previous genito-urinary trouble was denied. An X-ray picture and examination of the urine for tubercle bacilli were negative. Examination of the urethra showed a pin-point meatus and two narrowings—one in the bulbo-membranous portion and one just back of the meatus. Under gradual dilation all symptoms disappeared and the urine became absolutely clear. (See a fuller description in this number of the Bulletin.)

Traumatic Atrophy of the Testicle. DR. CHURCHMAN.

The patient was a man aged 19, who had been normal in every way until 11 months before admission, when he had received a kick in the scrotum, followed by redness and swelling of the left testicle. The swelling soon went down and atrophy then supervened, the testicle gradually shrinking until it reached the size of a hazel-nut. It, with an accompanying varicocele, was removed under cocaine. Section of the testicle showed a good many normal tubules and a few atrophied ones. There was no connective-tissue increase. The vas and epididymis were patent and no good pathological explanation was found for the atrophy. The specimen also contained a curious gland-like structure which looked on cross-section much like the uterus. It was connected with the tunica albuginea by a tube lined by columnar ciliated epithelium which looked a good deal like the Fallopian tube. The structures were thought to be rests of the Müllerian duct.

NOTES ON NEW BOOKS.

Scientific Memoirs by the Officers of the Medical and Sanitary Departments of the Government of India. New Series, No. 14. On a Parasite found in the White Corpuscles of the Blood of Dogs. By CAPT. S. P. JAMES, M. B. I. M. S. (*Calcutta: Office of Superintendent of Government Printing, India, 1905.*)

After reviewing the meager literature which refers to protozoan parasites in the leucocytes of birds, the author proceeds to describe a parasite which he found in the leucocytes in the blood of six out of forty-five dogs. These bodies are bean-shaped or rounded structures contained within the leucocytes which seem not to be injured by their presence. Two types may be seen—those with all the chromatin contained in the nucleus, and those with a micronucleus or centrosome situated at the pole of the body opposite the nucleus.

Such parasites are rarely found free in the plasma although one was seen to leave the leucocyte in the form of a vermiculus, which, however, made but slight movements.

This is regarded as a hitherto unknown form of mammalian blood infection and the parasite is named *Leucocytozoon canis*. No fever accompanies even intense infections with the parasite.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series, No. 13. Oriental or Delhi Sore. By CAPTAIN S. P. JAMES, M. B. I. M. S. (*Calcutta: Office of Superintendent of Government Printing, India, 1905.*)

In a large proportion of the cases diagnosed as Delhi sore the author found a minute parasite usually enclosed in considerable numbers within large mononuclear cells which form the characteristic feature of the granulation tissue in the floor of the ulcer. These parasites are oval or round; they contain a large nucleus and a second small chromatin mass, sometimes two small ones. Occasionally evidences of division are seen and rosette-like segmentation forms are sometimes found. Inoculation into dogs gave no result, but auto-inoculation has been observed in human beings.

In India, where this condition is common, puncture of the spleen in persons with enlarged spleen failed to show the presence of any such parasites, while in Assam, where the *Kala azar* prevails, in which parasites morphologically identical with these are obtained by puncture from the spleen, nothing resembling Delhi sore which shows the parasite occurs. Probably, therefore, the parasites in these two conditions, while very similar, are not identical.

Publications of Cornell University Medical College. Studies from the Department of Pathology. Vol. IV. (*New York City: 1904.*)

The volume consists of a collection of reprints of papers which have appeared in various journals.

The first, by J. M. Polk, deals with a study of the variations in the hæmolytic power of human serum in varying diseased conditions.

Two papers by Ewing follow, in which he attempts to show that the bodies described as the ætiological factor in vaccine and variola are probably cellular degeneration products.

The paper of Buxton and Vaughan on agglutination is devoted to a study of agglutinins—the agglutinating bodies in the serum, agglutinums—the agglutinable substance of the bacilli, etc. They conclude that in estimating the agglutinating value of a serum one must take into account the agglutinable value of the bacilli. Agglutinoids are agglutinins changed by heat, which will also split off agglutinums from bacilli as free receptors which are probably identical with precipitums.

The next paper, by J. C. Johnston, on Melanoma, refers the melanotic tumors to an endothelial origin except for a few which spring from epithelium.

Other papers follow upon the Chemistry of Malignant Growths, the Psychological Action of Azoimid, Aberrant Thyroid Tissue, Myxœdema and Various Pathological Lesions of the Central Nervous System.

Such a book, made up of heterogeneous papers, all of which have appeared in accessible journals, ought to be convenient for the workers in that laboratory. At any rate, it displays to advantage the activity of the laboratory.

The Surgery of the Heart and Lungs. A History or Résumé of Surgical Conditions found therein, and Experimental and Clinical Research in Man and Lower Animals, with Reference to Pneumonotomy, Pneumonectomy and Bronchotomy, and Cardiotomy and Cardiorrhaphy. By BENJAMIN MERRILL RICKETTS, Ph. B., M. D., Member Am. Med. Assn., etc. (*New York: The Grafton Press, 1904.*)

The book, consisting of 510 pages, is divided into two parts, the Surgery of the Heart and the Surgery of the Lungs, and at the beginning of each the terminology used in that part is given, which is convenient to the student. There are 177 pages of bibliography, and each chapter is followed by the literature of its own particular subject, which is a good arrangement. A large number of the remaining pages are taken up with historical notes and extracts from papers mentioned in the bibliography. Research work on the heart and lungs of dogs occupies about 50 pages, and some of the original experiments are interesting. The illustrations are excellent, being either photographs or photomicrographs. The practical hints on suturing, drainage, and other points in technique are useful.

On the whole the book will probably be much more interesting to one requiring references to the literature than to the practical surgeon, because some of the most successful methods of operation are not considered, among others the use of Sauerbruch's air chamber.

A Treatise on Diseases of the Nervous System. By L. Harrison Mettler, A. M., M. D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in one volume. Profusely illustrated; two color plates; full indexes; pp. 990. (*Chicago: Cleveland Press, 1905.*)

This is a ponderous volume of nearly one thousand pages, devoted to an extended and rhetorical description of nervous diseases based upon the neurone doctrine. A "provisional classification" is introduced which the author states may be subject to change from time to time. Briefly it is as follows: I. Neuronic Diseases (Parenchymatous Degenerative Troubles). (a) Functional, (b) Organic. II. Non-neuronic Diseases (Interstitial and Vascular Troubles affecting the Neurones secondarily). III. General Intoxications with Special Nervous Symptoms.

This innovation will hardly meet with general favor, as the old system of classifying diseases into those of the Brain, Spinal Cord, and Peripheral Nerves has been in use for many years and has proven satisfactory. The dogmatic statement that "the neurone doctrine is now an accepted fact" is certainly questionable in the light of recent investigations. The book shows wide reading and hard work in its preparation. It treats exhaustively the various diseases—in fact, there is a verbosity about many of the chapters that might well be omitted.

Modern psychology is used freely to explain many "psychophysical" manifestations. In reading this work there are several omissions that are very striking. For example, under Tabes no mention is made of hypotonus and but brief reference to Frenkel's systematic exercise treatment. Babinski's sign is described, but no statement is made concerning its special significance, and under Spastic Paraplegia it is not given as one of the symptoms, nor is ankle clonus referred to, both of which are very characteristic of this disease. The chapter on Cerebral Localization embraces thirty-five pages devoted largely to the psychological aspect of the subject. There is only one illustration of this important section. The pathologic changes in the cortex in general paresis are briefly touched upon and then not in accord with the recent views of Alzheimer, Nissl, and others. The chapters on epilepsy are drawn largely from Spratling's recent book. There are so many other text-books on neurology more concise, practical, and accurate that it is difficult to see just the place such a book as Mettler's will fill. The illustrations are profuse and well selected. Those from Held, Spalteholtz, and Jakob suffer in clearness of detail from reproduction. The print is clear and the paper good. The general make-up of the book is first class. A. P. H.

The Ophthalmic Year-Book. A Digest of the Literature of Ophthalmology, with Index of Publications for the Year 1903. By Edward Jackson, A. M., M. D. With 45 illustrations. (*Denver: The Herrick Book and Stationery Co., 1905.*)

This book contains an excellent digest of the best contributions to ophthalmic literature for the year 1903. The editor's work has been well done, and his judgment of the real worth of contributions to ophthalmology for that year is excellent. By the omission of much trivial and unimportant matter, the editor has been able to extract and direct the better articles appearing in that year with sufficient fulness to be of real value to the practitioner. The general arrangement of the digest of subject matter is very good, and a very clear idea of the newer views held regarding the pathology of various affections of the eye may be obtained from its pages.

The book on every page shows that the author has gone over the literature for the year 1903 with care and judgment. There is a very convenient reference table to the literature for that year in the back of the book. B. B. B.

Atlas and Epitome of Operative Ophthalmology. By Prof. Dr. O. Haab, of Zurich. Authorized translation from the German with editorial notes and additions. Edited by G. E. de Schweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania. With 30 colored lithographic plates and 154 text cuts. (*Philadelphia, New York, London: W. B. Saunders & Company, 1905.*)

This is the third and last atlas on ophthalmology in the series of medical hand atlases published by the Saunders Company. The color plates are good, and serve to illustrate the text very well. Unlike most atlases, which seem to exist chiefly for the edification of the eye, this book possesses much merit in its text, for the description of the various operations for the relief and cure of many diseases of the eye are so clear and full that the volume can well hold place with more pretentious text-books on the eye. The author enriches the book with numerous practical and important details which his long clinical experience has taught him to be of importance for the complete success of the operations described.

The book can be well recommended to the specialist, practitioner, and student as an excellent exposé of operative ophthalmology at the present day. B. B. B.

A Compend of the Practice of Medicine. By Daniel E. Hughes, M. D. Seventh edition. Revised by Samuel H. Brown, M. D. 779 pp. (*Philadelphia: P. Blakiston's Son & Co., 1905.*)

This posthumous edition of the late Dr. Hughes' work is considerably augmented in size, though the thin paper and flexible covers make it a handy volume.

As a compend for quick reference the book has a definite value, as the subject matter is presented in a clear manner with the salient points and differential diagnoses emphasized. There are also sections on clinical methods and modern therapy.

T. R. B.

The American Year-Book of Medicine and Surgery. Edited by George M. Gould, M. D. Medicine. (*Philadelphia and London: W. B. Saunders & Co., 1905.*)

We have from year to year expressed our appreciation of this publication. The volume for 1905 keeps up the high character of its predecessors. In his preface Dr. Gould notes that there is one change in the editorial staff owing to the death of Dr. S. W. Abbott, of Boston. His department, that of Public Hygiene and Preventive Medicine, will in the future be in the hands of Dr. John S. Fulton, of Baltimore. The extracts throughout the volume seem to have been done with the same care as formerly. As Dr. Gould notes, there is increasing difficulty in keeping down the size of the volume.

The International Medical Annual. 1905. Twenty-third year. (*New York: E. B. Treat & Co.*)

This publication shows signs of prosperity, as the size of the page has been increased. Despite this the price remains the same. This volume opens with a careful review of the more recent advances in therapeutics. In the discussion of various subjects special attention is paid each year to certain subjects. Thus the surgical treatment of Bright's disease, various gastric and intestinal conditions, diseases of the pancreas and of the prostate re-

ceive special mention this year. There are two good colored plates showing trypanosomes and Leishman-Donovon bodies. There are a number of plates illustrating eye conditions.

We can only repeat the favorable opinion expressed in the past regarding this work. It is extremely useful, especially for the busy practitioner who wishes to have recent advances in a form which is easy of reference and reliable. There are many references to the literature of the past year.

Bacteriology and Surgical Technic for Nurses. By EMILY M. A. STONEY, Superintendent of the Training School for Nurses, etc. Second Edition. Thoroughly revised and enlarged by FREDERICK RICHARDSON GRIFFITH, M. D. (University of Pennsylvania). Illustrated. (*Philadelphia, New York, London: W. B. Saunders & Company, 1905.*)

A previous edition of this book was noticed in the BULLETIN some time ago. The present edition contains all the merits of the former and has been much improved by a thorough revision and the addition of more than 80 pages of letter press. The glossary at the end of the book is more apparent than real, being much too restricted and should be much enlarged in a future edition. Why emesis, for example, should be included and enuresis omitted or why actinomycosis should be defined and acetonuria omitted are queries which cannot be satisfactorily answered. A glossary to be of any value should include words which are liable to be encountered by the nurse in her reading. It is not sufficient to define a few ordinary words the meaning of which should be known to every tyro in nursing.

The Effects of Tropical Light on White Men. By MAJOR CHAS. E. WOODRUFF, A. M., M. D., Surgeon U. S. Army. (*New York: Rebman Company; London: Rebman, Limited, 1905.*)

The former publications of Major Woodruff on anthropological subjects have attracted wide attention and excited much discussion. It can hardly be thought that the contention in the present volume will pass unchallenged. The author believes that zoological zones exist upon the surface of the globe which are best suited to the living, and development of individual races of men. He believes for example that blonds are best suited to the temperate zones, yellow men to the sub-tropical regions, and black men to equatorial countries and that any attempt on the part of either of these three colors to invade the natural habitat of the other is followed by disaster. He believes that the important agent in producing the physical and nervous degeneration of the blond is light which at first stimulates and later destroys the vitality of races which are not protected from its injurious effects by a pigment in the skin. His theory is that the blond is probably the highest type of race and is capable of higher performances than any other under normal conditions of climate, but that invariably when the blond has attempted to invade the tropics he disappears because he is not adapted to a tropical existence.

The author brings a wealth of historical material to support his theory and presents it in an interesting way.

The practical application of the book to our recent occupation of the Philippines and West Indies is obvious in a chapter on "Practical Rules for White Men in the Tropics," which should be carefully considered by all who have to do with our new possessions. The book is attractively gotten up and should have wide circulation.

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